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10/748,061

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Requester's Full Name: MOLLY CEPERLEY Examiner #: 59757 Date: 06/04/02

Art Unit: 1641 Phone Number 30 8-4239 Serial Number: 09/946,079

Mail Box and Bldg/Room Location: CM1-8D15 Results Format Preferred (circle): PAPER DISK E-MAIL

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If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Composition and Method for Regulating the Adhesion of Cells and Biomolecules to Hydrophobic surfaces

Inventors (please provide full names): Karin Caldwell, Per Jan Erik Carlsson, Jeng-Thun Li, Patrick A. Tresco, Jennifer Neff

Earliest Priority Filing Date: 08/20/93 or 03/07/95

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

Please search for claims 48 through 66.

Terms:

EGAPs (end group activated polymers), Pluronic®, hydrophobic, polypropylene oxide (PPO), polyethylene oxide (PEO), F-108®, adher?, block, diblock triblock copolymers (or polymers), cells, viruses.

Point of Contact:
Beverly Shears
Technical Info. Specialist
CM1 1E05 Tel: 308-4994

C. Chan
Rush

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Searcher: Beverly c 4994

Searcher Phone #:

Searcher Location:

Date Searcher Picked Up:

Date Completed: 06-06-02

Searcher Prep & Review Time: 15

Clerical Prep Time:

Online Time: 41

Type of Search

NA Sequence (#)

AA Sequence (#)

Structure (#)

Bibliographic

Litigation

Fulltext

Patent Family

Other

Vendors and cost where applicable

STN ✓

Dialog

Questel/Orbit

Dr.Link

Lexis/Nexis

Sequence Systems

WWW/Internet

Other (specify)

PTO-1590 (8-01)

Ceperley
09/946079

FILE 'REGISTRY' ENTERED AT 10:45:36 ON 06 JUN 2002
E PLURONIC/CN 5
L1 1 S E3
E POLYPROPYLENE OXIDE/CN 5
E PPO/CN 5
E PEO/CN 5
L2 1 S E3
E POLYETHYLENE OXIDE/CN 5
L3 1 S E3
E "F-108"/CN 5
E F 108/CN 5
L4 4 S E3-E6
E F108/CN
L5 5 S L1 OR L2 OR L3 OR L4

FILE 'HCAPLUS' ENTERED AT 10:48:22 ON 06 JUN 2002)
L1 1 SEA FILE=REGISTRY ABB=ON PLU=ON PLURONIC/CN
L2 1 SEA FILE=REGISTRY ABB=ON PLU=ON PEO/CN
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON "POLYETHYLENE OXIDE"/CN

L4 4 SEA FILE=REGISTRY ABB=ON PLU=ON ("F 108"/CN OR "F 108 (DISPERSANT)"/CN OR "F 108 (ETCHANT)"/CN OR "F 108 (POLYESTER)"/CN)
L5 5 SEA FILE=REGISTRY ABB=ON PLU=ON L1 OR L2 OR L3 OR L4
L6 127854 SEA FILE=HCAPLUS ABB=ON PLU=ON L5 OR EGAP OR END GROUP(1W)POLYMER OR PLURONIC OR (POLYPROPYLENE OR POLYETHYLENE OR POLY(W)(PROPYLENE OR ETHYLENE))(W)OXIDE OR (PPO OR PEO)(S)OXIDE OR F108 OR F 108 OR (BLOCK OR TRIBLOCK OR DIBLOCK)(5A)(POLYMER OR COPOLYMER)
L11 796 SEA FILE=HCAPLUS ABB=ON PLU=ON L6 AND (HYDROPHOB? OR HYDRO PHOB?)(5A)SURFAC?
L12 218 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND (CELL OR VIRUS OR VIRAL OR BIOMOLECULE OR (BIO OR BIOL?)(W)MOLECULE OR PROTEIN OR ENZYME OR PEPTIDE OR AMINO OR DNA OR NUCLEIC OR DEOXYRIBONUCLEIC OR DEOXY RIBONUCLEIC OR RECOMBIN?(W)(GF OR GROWTH FACTOR) OR MITOGEN OR CYTOKINE OR DIFFERENTI AT? FACTOR)
L13 102 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND (SUGAR OR CARBOHYDRATE OR POLYSACCHARIDE OR POLY SACCHARIDE OR LIPID OR STEROL OR FATTY ACID)
L14 37 SEA FILE=HCAPLUS ABB=ON PLU=ON (L12 OR L13) AND ADHES?

L14 ANSWER 1 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:157622 HCAPLUS
DOCUMENT NUMBER: 136:205500
TITLE: Preparation of polymer surfaces for biocompatible materials
INVENTOR(S): Ulbricht, Mathias; Thom, Volkmar; Jankova, Katja; Altankov, George; Jonsson, Gunnar
PATENT ASSIGNEE(S): Surfarc Aps, Den.
SOURCE: PCT Int. Appl., 217 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 2002015955	A2	20020228	WO 2001-DK557	20010823
WO 2002015955	A3	20020502		

W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: DK 2000-1250 A 20000823

AB The present invention concerns a novel approach of creating biocompatible surfaces, the surfaces being capable of functionally interacting with biol. materials. The biocompatible surfaces comprise at least 2 components, such as a hydrophobic substratum and a macromol. of hydrophilic nature, which form together the novel biocompatible surfaces. The novel approach is based on contacting the hydrophobic substratum with a laterally patterned monomol. layer of the hydrophilic and flexible macromols., exhibiting a pronounced excluded vol. The 2-component surface thus formed, is, with respect to polarity and morphol., a molecularly heterogeneous surface. Structural features of the macromol. monolayer (e.g,. the layer thickness or its lateral d.) are detd. by the structural features of the layer forming macromols. (their MW or their mol. architecture) and the method of creating the monomol. layer (e.g., by phys. or chem. sorption, or by chem. binding the macromols.). The structural features of the layer forming macromols.(s) is in turn detd. by synthesis. The amt. and conformation and also the biol. activity of biol. materials (e.g., polypeptides) which contact the novel biocompatible surface, is detd. and maintained by the cooperative action of the underlying hydrophobic substratum and the macromol. layer. It becomes possible to maintain and control biol. interactions between said contacted polypeptides and other biol. compds. e.g., **cells**, antibodies and the like. Consequently, the present invention aims to reduce and/or eliminate the deactivation and/or denaturation assocd. with the contacting of polypeptides and/or other biol. material to a **hydrophobic** substratum **surface**. Thus, .alpha.-4-azidobenzoyl-.omega.-methoxy PEG was prepd. and grafted to polysulfone surfaces and their wettability was detd. The adsorption properties of the grafted polymer were evaluated by exposing it to BSA soln.

IT **25322-68-3**, Polyethylene glycol
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. of polymer surfaces for biocompatible materials)

L14 ANSWER 2 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:725226 HCAPLUS
TITLE: Plasma lithography - thin-film patterning of polymers by RF plasma polymerization II: Study of differential binding using adsorption probes
AUTHOR(S): Goessl, Andreas; Golledge, Stephen L.; Hoffman, Allan S.
CORPORATE SOURCE: Department of Bioengineering, University of Washington, Seattle, WA, 98195, USA

SOURCE: J. Biomater. Sci., Polym. Ed. (2001), 12(7), 739-753
CODEN: JBSEEA; ISSN: 0920-5063
PUBLISHER: VSP BV
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In this study we present methods to physico-chem. modify micropatterned **cell** culture substrates that were manufd. using plasma lithog. to incorporate affinity structures for specific **cell** binding. The surfaces consist of a pattern of a fluorocarbon plasma polymer with feature sizes between 5 and 100 .mu.m on a background of a non-fouling tetraglyme (tetraethylene glycol di-Me ether) plasma polymer. The tetraglyme **polymer blocks** virtually all non-specific binding of **proteins**, and it is non-**adhesive** for a fluorocarbon-polyethylene glycol (FC-PEG) **surfactant** designed to act as a "**hydrophobic** anchor" for **peptides**. The surfactant shows a strong affinity for the fluorocarbon polymer pattern, thus enabling us to form a pattern of the surfactant-conjugated **peptide**. To verify this, we have synthesized a conjugate between histamine (as a model for a more complex **peptide**) and a com. available FC-PEG surfactant. Disuccinimidyl carbonate was used to activate the terminal -OH group of the polyethylene glycol headgroup for the reaction with the amine-contg. mol. Affinity pattern formation can easily be achieved by immersion of the patterned substrates in a soln. of the **peptide**-surfactant conjugate. Time of flight secondary ion mass spectroscopy in the imaging mode was used to verify that the surfactant localizes on the pattern, while the background remains bare. A model **protein**, bovine serum albumin, showed the same behavior. This suggests that these surfaces can be used for the formation of patterns of **cell**-**adhesive proteins**. These substrates will be used to investigate the influence of the **cell** size and shape of vascular smooth muscle **cells** on their physiol.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 37 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:651565 HCAPLUS
DOCUMENT NUMBER: 135:207894

TITLE: **Adhesion** of **cells** and **biomolecules** to **hydrophobic surfaces** using conjugated **end-group** activated **polymers**

INVENTOR(S): Caldwell, Karin D.; Tresco, Patrick A.; Neff, Jennifer
PATENT ASSIGNEE(S): University of Utah Research Foundation, USA

SOURCE: U.S., 23 pp., Cont.-in-part of U.S. 5,728,588.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 6284503	B1	20010904	US 1997-784203	19970115
US 5516703	A	19960514	US 1993-110169	19930820
US 5728588	A	19980317	US 1995-399913	19950307
WO 9831734	A1	19980723	WO 1998-US337	19980115

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

AU 9860182	A1	19980807	AU 1998-60182	19980115
AU 740877	B2	20011115		
EP 1002066	A1	20000524	EP 1998-903402	19980115

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

US 2002019037	A1	20020214	US 2001-946079	20010904

PRIORITY APPLN. INFO.:

US 1993-110169	A3	19930820
US 1995-399913	A2	19950307
US 1997-784203	A	19970115
WO 1998-US337	W	19980115

AB The present invention is directed to a compn. and method for regulating the **adhesion** of **cells** and **biomols.** to **hydrophobic surfaces** and **hydrophobic** coated **surfaces.** The compn. is a **biomol.** conjugated **end-group** activated **polymer** (FGAP). Thus, the end groups of a PEO- and PPO-contg. **block copolymer** (e.g., Plutonic **F108**) is coated on a **hydrophobic surface**, end-group modified/thiolated by reaction with 4-nitrophenylchloroformate followed by 2-(2-pyridyldithio)ethylamine, and conjugated with a thiol-contg. biopolymer. The **biomol.** conjugated **EGAP** can be put to numerous uses including **cell adhesion, cell** growth, **cell** sorting, and other biol. assays.

IT **106392-12-5, Polyethylene oxide-Polypropylene oxide block copolymer**
RL: DEV (Device component use); USES (Uses)
(**adhesion** of **cells** and **biomols.** to **hydrophobic surfaces** using conjugated **end-group** activated **polymers**)

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:435989 HCAPLUS
DOCUMENT NUMBER: 135:231648
TITLE: Studies on the effect of surface properties on the biocompatibility of polyurethane membranes
AUTHOR(S): Lin, Dong-Tsamn; Young, Tai-Horng; Fang, Yu
CORPORATE SOURCE: Department of Laboratory Medicine, College of Medicine, National Taiwan University, Taipei, 10016, Taiwan
SOURCE: Biomaterials (2001), 22(12), 1521-1529

CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To study the effect of the surface properties on the biocompatibility of biomaterials based on the same material, polyurethane membranes with different surface properties were prepd. Myoblast culture and interleukin-1 (IL-1) generation in an air pouch model and in vitro monocyte culture were used to examine biocompatibility of different polyurethane membranes. Polyurethane membranes were found to exhibit significant differences depending on their surface properties prepd. by different fabrication processes. When myoblasts were cultured on polyurethane **surfaces**, the smooth and **hydrophobic** membrane (F1), prepd. by the solvent evapn. process, showed the greatest inhibition of myoblast **adhesion** compared with other porous and hydrophilic membranes (F2, F3 and F4), prepd. by immersing the polymer soln. into a pptn. bath. In contrast, IL-1 generation by monocytes/macrophages on the membrane F1 was more severe than those on the porous and hydrophilic membranes. Based on our results, the interaction of biomaterials with various **cells** is discussed.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 5 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:553270 HCAPLUS
DOCUMENT NUMBER: 133:151722
TITLE: Bioadhesive composition for biomedical skin electrode
PATENT ASSIGNEE(S): First Water Ltd., UK
SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1026219	A1	20000809	EP 1999-300740	19990202
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
WO 2000046319	A1	20000810	WO 2000-GB302	20000202
W: AE, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1163309	A1	20011219	EP 2000-901759	20000202
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

US 2002015689 A1 20020207 US 2001-916880 20010727
PRIORITY APPLN. INFO.: EP 1999-300740 A 19990202
WO 2000-GB302 W 20000202

AB A bioadhesive compn. is formed by polymg. an aq. reaction mixt. comprising 5-50 wt.% of water-sol. ionic monomers, 10-50 wt.% of at least one plasticizer other than water, 10-50 wt.% of water-sol. nonionic monomers, and 3-40 wt.% of water. The reaction mixt. may further contain 0.05-10 wt.% of a **surfactant**, 1-30 wt.% of a **hydrophobic** monomer and/or a hydrophobic polymer, and 0.1-5 wt.% of a **lipid** micellizing polymer. Thus Irgacure 184 0.07, N,N-dimethylacrylamide 23.5, glycerol 30, a 58% sodium 2-acrylamido-2-methylpropanesulfonate 40, and a soln. of 6.0 g of Irgacure 184 and 20 g of polyethylene glycol diacrylate 0.13 g were mixed and cured by UV radiation to give an **adhesive** having peel strength on dry skin 1.8 N/cm.

IT **106392-12-5, Pluronic** L 64
RL: MOA (Modifier or additive use); USES (Uses)
(bioadhesive compn. for biomedical skin electrode)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 6 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:490082 HCAPLUS
DOCUMENT NUMBER: 133:208465
TITLE: Interactions of **Poly(ethylene oxide)** Brushes with Chemically Selective Surfaces
AUTHOR(S): Sheth, S. R.; Efremova, N.; Leckband, D. E.
CORPORATE SOURCE: Department of Chemical Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA
SOURCE: Journal of Physical Chemistry B (2000), 104(32), 7652-7662
CODEN: JPCBFK; ISSN: 1089-5647
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Poly(ethylene glycol) (PEG) has long been recognized for its unusual ability to resist **protein** adsorption. This is attributed to the repulsion of **proteins** by the polymer segments. Despite its successes, there are several reports that PEG does weakly bind **proteins**. This work tests the hypothesis that the PEG can bind to nonpolar, hydrophobic groups such as the aliph. side chains of **amino** acids. To do this we measured the force-distance profiles between PEG5000 brushes and self-assembled alkanethiol monolayers with varying amts. of nonpolar methyl-terminal groups. The polymer **adhesion** to these chem. selective surfaces increased with increasing d. of surface Me groups. The equil. thickness of the polymer chains in contact with the alkanethiol monolayer decreased correspondingly. The brush did not adhere to **lipid** bilayers or to bare mica. The results show that PEG will adsorb to nonpolar, **hydrophobic surfaces**. These findings may provide a possible explanation for previous direct force measurements of **protein**-PEG **adhesion**, and reports of PEG complexation with partially folded **proteins**.

REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 7 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:71338 HCAPLUS
DOCUMENT NUMBER: 132:241869
TITLE: Ligand accessibility as means to control **cell** response to bioactive bilayer membranes
AUTHOR(S): Dori, Yoav; Bianco-Peled, Havazelet; Satija, Sushil K.; Fields, Gregg B.; McCarthy, James B.; Tirrell, Matthew
CORPORATE SOURCE: Department of Chemical Engineering and Materials, University of Minnesota, Minneapolis, MN, 55455, USA
SOURCE: Journal of Biomedical Materials Research (2000), 50(1), 75-81
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We report a new method to create a biofunctional surface in which the accessibility of a ligand is used as a means to influence the **cell** behavior. Supported bioactive bilayer membranes were created by Langmuir-Blodgett (LB) deposition of either a pure PEG **lipid**, having PEG head groups of various lengths, or 50 mol% binary mixts. of a PEG **lipid** and a novel collagen-like **peptide** amphiphile on a **hydrophobic surface**. The **peptide** amphiphile contains a **peptide** synthetically lipidated by covalent linkage to hydrophobic dialkyl tails. The amphiphile head group lengths were detd. using neutron reflectivity. **Cell adhesion** and spreading assays showed that the **cell** response to the membranes depends on the length difference between head groups of the membrane components. **Cells** adhere and spread on mixts. of the **peptide** amphiphile with the PEG **lipids** having PEG chains of 120 and 750 mol. wt. (MW). In contrast, **cells** adhered but did not spread on the mixt. contg. the 2000 MW PEG. **Cells** did not adhere to any of the pure PEG **lipid** membranes or to the mixt. contg. the 5000 MW PEG. Selective masking of a ligand on a surface is one method of controlling the surface bioactivity.

IT **25322-68-3**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(ligand accessibility as means to control **cell** response to bioactive bilayer membranes)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 8 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:68867 HCAPLUS
DOCUMENT NUMBER: 132:241867
TITLE: Optimizing **Cell**-Surface Interactions by Photografting of Polyethylene glycol

AUTHOR(S): Thom, V. H.; Altankov, G.; Groth, Th.; Jankova, K.; Jonsson, G.; Ulbricht, M.
CORPORATE SOURCE: Department of Chemical Engineering, Technical University of Denmark, Lyngby, DK-2800, Den.
SOURCE: Langmuir (2000), 16(6), 2756-2765
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new general approach for improving polymer substratum biocompatibility is proposed. In a first example, polysulfone (PSf) film was modified by covalent end-on grafting of poly(ethylene glycol) (PEG) (2, 5, and 10 kDa) using well-defined, photoreactive .alpha.-4-azidobenzoyl-.beta.-methoxy-PEG conjugates (ABMPEG). After adsorption from aq. soln., ABMPEG was photografted under wet conditions onto PSf, where the degree of surface functionalization could be controlled through the applied ABMPEG concn. during adsorption. Attained surface characteristics, after changing systematically ABMPEG concn., mol. wt., and the ratio of binary ABMPEG mixts., were monitored by air-water contact angles (CA, captive bubble method) and partially also by X-ray photon spectroscopy (XPS). For ABMPEG 10 kDa adsorption kinetics and grafting efficiency as a function of applied concn. were evaluated by both CAs and fibronectin (FN) adsorption (in situ ellipsometry) to surfaces modified at different degrees of functionalization. CAs attained equil. values only after about 1-2 h, suggesting that surface organization processes retard ABMPEG adsorption. FN adsorption decreased monotonically as the degree of surface functionalization increased. Human skin fibroblast interaction with ABMPEG 10 kDa functionalized PSf films was studied, and a clear optimum of fibroblast-material interaction on mildly modified surfaces could be found based on the no. of adhering **cells**, but also on morphol. criteria including overall **cell** morphol., **cell** spreading, and formation of focal **adhesion** contacts, visualized by fluorescent staining of vinculin. The results suggest that **adhesive proteins** such as FN are adsorbed in a biol. active state yielding enhanced **cell**-substratum interaction when a **hydrophobic** substratum is **surface** modified at an intermediate degree with hydrophilic, flexible, sterically demanding, and possibly "self-assembled" macromols., e.g., PEG. Presumably, those macromols. exert a lateral pressure upon neighboring adsorbed **adhesive proteins**, yielding surface bound but in their active conformation stabilized **proteins** with high biol. activity.
IT **25322-68-3**, PEG
RL: MSC (Miscellaneous)
(optimizing **cell**-surface interactions by photografting of PEG)
REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 9 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:376509 HCAPLUS
DOCUMENT NUMBER: 131:196646
TITLE: Poly(ethylene glycol) grafting as a way to prevent **protein** adsorption and

bacterial adherence
AUTHOR(S): Holmberg, K.; Harris, J. M.
CORPORATE SOURCE: Institute for Surface Chemistry, Stockholm, S-114 86, Swed.
SOURCE: International Congress on Adhesion Science and Technology, Invited Papers, Festschrift in Honor of Dr. K. L. Mittal on the Occasion of his 50th Birthday, 1st, Amsterdam, Oct. 16-20, 1995 (1998), Meeting Date 1995, 443-460. Editor(s): Van Ooij, W. J.; Anderson, H. R., Jr. VSP: Utrecht, Neth.
CODEN: 67SXAC
DOCUMENT TYPE: Conference
LANGUAGE: English

AB Grafting of poly(ethylene glycol) (PEG) is an effective way of reducing adsorption of **proteins** and bacteria to **hydrophobic surfaces**. The paper discusses and compares two different routes of attaching PEG chains to surfaces: adsorption of **block copolymers** of ethylene oxide and propylene oxide (EO-PO **block copolymers**) and grafting via use of an anchoring polymer, poly(ethylene imine) (PEI). An overriding goal is to achieve a dense packing of PEG chains. The best effect in terms of **protein** and bacteria rejection, judged from short-term expts., is obtained by adsorbing a pre-formed copolymer of PEG grafted to PEI on a neg. charged surface. Using PEGs of mol. wt. 1500 g/mol or higher, **protein** adsorption is reduced to a few percent of the amt. adsorbed at an untreated surface. The **block copolymer** adsorption route is less effective, mainly due to **protein**-induced desorption of the hydrophilizing agent. Bacterial adherence is also minimal when the PEI-PEG route is used. Branched PEGs are slightly less effective than linear PEGs of the same mol. wt. The difference in performance between linear and branched PEGs is discussed in terms of difference in entropy change when the hydrophilic surface-bound layer is compressed by an approaching **protein**. Branched PEGs, having smaller exclusion vols. and less freedom of motion, will lose less entropy on compression. The effects exerted on **protein** adsorption by PEG attached to a surface parallel its effect on particle mobility in electrophoresis. Similar mol. properties seem to be responsible for both **protein** and bacteria rejection and redn. of electrokinetic effects.

IT **25322-68-3**
RL: NUU (Other use, unclassified); USES (Uses)
(poly(ethylene glycol) grafting as a way to prevent **protein** adsorption and bacterial adherence)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 10 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:278287 HCAPLUS
DOCUMENT NUMBER: 131:63410
TITLE: Fibronectin-**Pluronic** coadsorption on a polystyrene **surface** with increasing **hydrophobicity**: relationship to **cell adhesion**
AUTHOR(S): Detrait, E.; Lhoest, J.-B.; Bertrand, P.; Van den Bosch de Aguilar, Ph.

CORPORATE SOURCE: Unite de Biologie Animale (BANI), Universite Catholique de Louvain, Louvain-la Neuve, 1348, Belg.
SOURCE: Journal of Biomedical Materials Research (1999), 45(4), 404-413
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Recently, patterned polystyrene **surfaces** contg. **hydrophobic** (PS) and more hydrophilic (PSox) areas have been shown to be capable of directing cellular growth, which is mainly due to the competitive adsorption of **adhesive** and antiadhesive mols. In this article, the competitive adsorption between a **Pluronic** surfactant and fibronectin was studied on homogeneous PS or PSox substrates conditioned with mixts. contg. increasing concns. of 1 of the 2 mols. Radiolabeling and XPS techniques showed that fibronectin adsorption increased on both surfaces if the fibronectin concns. increased in the conditioning mixt. In contrast, fibronectin adsorption decreased on PSox and did not occur on PS surfaces when **Pluronic** concns. increased in the coating mixt. A comparison of these data with pheochromocytoma and Schwann **cells** cultured on patterned surfaces showed that the direction of **cell** growth on PSox areas depended first on the relative concns. of the 2 components in the mixts., and second, on their ratio; the best concn. ratio probably depends on the **cell**'s ability to recondition its support.

IT **106392-12-5, Pluronic**
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fibronectin-**Pluronic** coadsorption on polystyrene **surface** with increasing **hydrophobicity**)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 11 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:714346 HCAPLUS
DOCUMENT NUMBER: 130:100574
TITLE: Heterogeneous polymer surfaces used as biomaterials: **protein** adsorption and **cell adhesion**
AUTHOR(S): Marchal, Th. G.; Verfaillie, G.; Legras, R.; Trouet, A. B.; Rouxhet, P. G.
CORPORATE SOURCE: Unite de chimie des interfaces, Louvain-la-Neuve, 1348, Belg.
SOURCE: Mededelingen - Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen (Universiteit Gent) (1998), 63(4a), 1109-1116
CODEN: MFLBER; ISSN: 1373-7503
PUBLISHER: Universiteit Gent, Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Protein** adsorption (collagen, fibronectin and laminin) and **cell adhesion** (fibroblasts and endothelial

cells) on polypropylene, poly(ethylene terephthalate) and poly(Me methacrylate), were examd. in different media contg. or not fetal calf serum and/or **Pluronic** F68 surfactant. Inhibition of **cell adhesion** on hydrophobic substrata is due to adsorption of substances competing with extracellular matrix **proteins** specifically recognized by the **cells**. However, they also show that substratum surface properties more subtle than overall wettability are important. PP/PET blends have been used to create **surfaces** with zones of contrasted **hydrophobicity** and, thereby, with patterned laminin distribution, the scale of heterogeneity being of subcellular size. **Adhesion** of fibroblasts on a surface consisting of 24% PET and thus characterized by 24% laminin surface coverage is similar to that on a pure PP surface.

IT **106392-12-5, Pluronic** F68
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**protein** adsorption and **cell adhesion** on heterogeneous polymer surfaces used as biomaterials)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 12 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:666354 HCAPLUS
DOCUMENT NUMBER: 130:29171
TITLE: **Adhesion** of mammalian **cells** to polymer surfaces: from physical chemistry of surfaces to selective **adhesion** on defined patterns
AUTHOR(S): Dewez, J. -L.; Lhoest, J. -B.; Detrait, E.; Berger, V.; Dupont-Gillain, C. C.; Vincent, L. -M.; Schneider, Y. -J.; Bertrand, P.; Rouxhet, P. G.
CORPORATE SOURCE: Biomaterials Programme, Univ. Catholique de Louvain, Louvain-La-Neuve, 1348, Belg.
SOURCE: Biomaterials (1998), 19(16), 1441-1445
CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The study of the adsorption of type I collagen from a soln. contg. Pluroni F68 has shown that the latter prevents collagen adsorption on polystyrene and does not prevent it on surface-oxidized polystyrene. This explains the control of mammalian **cell adhesion** by substrate **surface hydrophobicity** and compn. of pre-conditioning soln. On that basis, selective **adhesion** of different types of mammalian **cells** (PC12 pheochromocytoma, MSC80 schwannoma, Hep G2 hepatoblastoma, rat hepatocytes) on patterned surfaces was achieved. Therefore tracks (width in the range of a few tens of .mu.m) of reduced hydrophobicity were produced on polystyrene by photolithog. and oxygen plasma treatment. After conditioning by a soln. contg. both **Pluronic** F68 and extracellular matrix **protein** (collagen, fibronectin), the latter adsorbed selectively on these paths thus allowing selective **adhesion** of the **cells**.

IT **106392-12-5, Pluronic** F68
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(phys. chem. of surfaces to selective **adhesion** on defined patterns in **adhesion** of mammalian **cells** to polymer surfaces)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 13 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:509233 HCAPLUS
DOCUMENT NUMBER: 129:153277
TITLE: Composition and method for regulating the **adhesion** of **cells** and **biomolecules** to **hydrophobic surfaces**
INVENTOR(S): Tresco, Patrick A.; Caldwell, Karin D.; Neff, Jennifer
PATENT ASSIGNEE(S): University of Utah Research Foundation, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9831734	A1	19980723	WO 1998-US337	19980115
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 6284503	B1	20010904	US 1997-784203	19970115
AU 9860182	A1	19980807	AU 1998-60182	19980115
AU 740877	B2	20011115		
EP 1002066	A1	20000524	EP 1998-903402	19980115
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2001512565	T2	20010821	JP 1998-534438	19980115

PRIORITY APPLN. INFO.:
US 1997-784203 A 19970115
US 1993-110169 A3 19930820
US 1995-399913 A2 19950307
WO 1998-US337 W 19980115

AB The present invention is directed to a compn. and method for regulating the **adhesion** of **cells** and **biomols.** to **hydrophobic surfaces** and **hydrophobic** coated **surfaces.** The compn. is a **biomol.** conjugated **end-group** activated **polymer** (**EGAP**). The **biomol.** conjugated **EGAP** can be put to numerous uses including **cell**

adhesion, **cell** growth, **cell** sorting and other biol. assays. **Pluronic F108** was activated with 4-nitrophenyl chloroformate and treated with amines such ans 1,3-propanediamine, taurine, **peptides**, or fibronectin.

IT **106392-12-5DP**, **Pluronic F108**, end-group activated
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**end-group** activated **polymers** for regulating the **adhesion** of **cells** and **biomols.** to **hydrophobic surfaces**)

L14 ANSWER 14 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:299367 HCAPLUS
DOCUMENT NUMBER: 129:58748
TITLE: A novel method for surface modification to promote **cell** attachment to hydrophobic substrates
AUTHOR(S): Neff, J. A.; Caldwell, K. D.; Tresco, P. A.
CORPORATE SOURCE: Center for Biopolymers at Interfaces, Department of Bioengineering, University of Utah, Salt Lake City, UT, 84112, USA
SOURCE: Journal of Biomedical Materials Research (1998), 40(4), 511-519
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The ability to study and regulate **cell** behavior at a biomaterial interface requires strict control over material surface chem. Perhaps the greatest challenge to researchers working in this area is preventing the fouling of a given surface due to uncontrolled **protein** adsorption. This work describes a method for coupling **peptides** to hydrophobic materials for the purpose of simultaneously preventing nonspecific **protein** adsorption and controlling **cell adhesion**. A hexapeptide contg. the ubiquitous RGD **cell-adhesion** motif was coupled to polystyrene (PS) via a **polyethylene oxide** (**PEO**) tether in the form of a modified **PEO/PPO/PEO triblock copolymer**. Triblocks were adsorbed onto PS at a d. of 3.3 .+-. (5.14 x 10-4) mg/m2 (1.4 x 105 .+-. 2.12 x 101 mols./.mu.m2), which was detd. by isotope 125I labeling. The **peptide**, GRGDSY, was activated at the N terminus with N-Succinimidyl 3-(2-pyridyldithio) propionate and coupled to immobilized tri-blocks where the terminal hydroxyls had been converted to sulfhydryl groups. Surface **peptide** d. was measured by **amino** acid anal. and found to be 1.4 x 104 .+-. 0.47 x 104 mols./.mu.m2. PS modified with PEO/PPO/PEO copolymers alone was found to be inert to **cell adhesion** both in the presence of serum **proteins** and when exposed to activated RGD **peptide**. In contrast, PS conjugated with RGD via end-group-activated PEO/PPO/PEO copolymers supported **cell adhesion** and spreading. The surface coupling scheme reported here should prove valuable for studying **cell**-ligand interactions under

simplified and highly controlled conditions.

IT **106392-12-5, Pluronic F108**
RL: RCT (Reactant); RACT (Reactant or reagent)
(novel method for surface modification to promote **cell** attachment to hydrophobic substrates)

L14 ANSWER 15 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:273603 HCAPLUS
DOCUMENT NUMBER: 129:27069
TITLE: Insights into protective effects of medium additives on animal **cells** under fluid stresses: the hydrophobic interactions
AUTHOR(S): Wu, Jianyong
CORPORATE SOURCE: Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University Hung Hom, Hong Kong, Peop. Rep. China
SOURCE: Cytotechnology (1996), 22(1-3), 103-109
CODEN: CYTOER; ISSN: 0920-9069
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Animal **cells** in suspension culture can suffer severe mech. damage from bursting gas bubbles or other hydrodynamic force sources. Certain chem. additives in the culture media, particularly some surface-active chems., can effectively protect animal **cells** against such damage. Previously we proposed that the protective effect is assocd. with the adsorption of the additives in the **cell** membrane through **hydrophobic** binding of the **surface**-active mols. to the membrane. Adsorption of the additives to the **cell** membrane may lead to decreased **hydrophobicity** of the **cell surface**, thus eliminating **cell adhesion** to bubbles and reducing **cell** damage from bursting bubbles. In this study, we measured the hydrophobicity of two insect **cell** lines based on **cell adhesion** to hydrocarbon phase and its influence by surface-active chems., **Pluronic** F68, a methylcellulose and a polyethylene glycol. The exptl. results showed strong support for the aforecited **cell** protection mechanism.

IT **25322-68-3**, Polyethylene glycol **106392-12-5**, **Pluronic** F68
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(insights into protective effects of medium additives on animal **cells** under fluid stresses: hydrophobic interactions)

L14 ANSWER 16 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:268424 HCAPLUS
DOCUMENT NUMBER: 128:322933
TITLE: Methods for producing low **protein** binding surfaces of plastics
INVENTOR(S): Bookbinder, Dana C.; Fewkes, Edward J., Jr.; Griffin, James A.; Smith, Frances M.; Tennent, David L.
PATENT ASSIGNEE(S): Corning Inc., USA
SOURCE: PCT Int. Appl., 60 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9817407	A1	19980430	WO 1997-US18021	19971003
W: AU, CN, JP, KR				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6093559	A	20000725	US 1997-918354	19970826
AU 9746708	A1	19980515	AU 1997-46708	19971003
EP 936951	A1	19990825	EP 1997-945529	19971003
R: CH, DE, FR, GB, IT, LI, NL				
CN 1233981	A	19991103	CN 1997-199048	19971003
JP 2001502959	T2	20010306	JP 1998-519407	19971003
US 6319664	B1	20011120	US 2000-507422	20000218

PRIORITY APPLN. INFO.: US 1996-29009P P 19961024
US 1997-918354 A3 19970826
WO 1997-US18021 W 19971003

AB **Hydrophobic** polymer **surfaces** (e.g. lab ware) whose level of **protein** binding .ltorsim.50-80 ng/cm2 are achieved by (1) applying a coating soln. of a solvent and a nonionic surfactant having HLB <5 to the surface; and (2) drying the surface to remove the solvent, bringing the **surfactant** into direct contact with the **hydrophobic** polymer. The combination of a low HLB and the drying step produce low **protein** binding surfaces which can withstand multiple washes with H2O and/or **protein**-contg. solns. Alternatively, the low binding surfaces can be produced by applying the nonionic surfactant to the mold surfaces which contact molten polymer and form the polymer into a desired shape, e.g., into a multi-well plate, a pipet tip, or the like. Further, the low binding surfaces may be produced by incorporating nonsol., nonionic surfactants having an HLB .ltoreq.10 into a polymer blend prior to molding the article. Polystyrene test plates coated with glycerol monooleate (HLB 3.4) show a redn. in **protein** binding of 92.4% compared to uncoated test plates.

IT **106392-12-5**, Ethylene oxide-propylene oxide **block copolymer**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(surfactant coating of plastic surfaces for producing low **protein** binding surfaces)

L14 ANSWER 17 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:642642 HCAPLUS
DOCUMENT NUMBER: 127:306657
TITLE: Effects of surface-active medium additives on insect **cell surface hydrophobicity** relating to **cell** protection against bubble damage
AUTHOR(S): Wu, Jianyong; Ruan, Qian; Lam, H. Y. Peter
CORPORATE SOURCE: Dept. of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University, Kowloon, Hong Kong
SOURCE: Enzyme Microb. Technol. (1997), 21(5), 341-348
CODEN: EMTED2; ISSN: 0141-0229
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal

LANGUAGE: English
AB A no. of medium additives such as **Pluronic** F68, methylcellulose, and serum have been shown to decrease the **adhesion** of animal **cells** to air bubbles, thus reducing **cell** damage by the bubbles at rupture. The effect may be assocd. with the interactions between the additives and the **cells**. One possible mechanism is that the additives adsorb to the **cell** membrane through a hydrophobic interaction, resulting in decreased **hydrophobicity** of the **cell surface**. This consequently reduces **cell adhesion** to gas bubbles. To test this hypothesis, the authors measured the hydrophobicity (**adhesion** to a hydrocarbon) of two insect **cell** lines in the presence of medium additives including **Pluronic** F68, methylcellulose, polyethylene glycol (PEG), and fetal bovine serum. All these additives except PEG caused substantial redn. in **cell surface hydrophobicity** which was consistent with their effect of decreasing **cell adhesion** to gas bubbles. In addn., significant adsorption was detected for the nonionic surfactants **Pluronic** and PEG to the insect **cells**. The findings are very helpful for elucidating the mechanisms of animal **cell** protection by surface-active chems.
IT **25322-68-3**, Polyethylene glycol **106392-12-5**, **Pluronic** F68
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(effects of surface-active medium additives on insect **cell surface hydrophobicity** relating to protection against bubble damage)

L14 ANSWER 18 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:582429 HCAPLUS
DOCUMENT NUMBER: 127:225260
TITLE: **Adhesion** mapping of silane-modified and PEO-grafted glass surfaces
AUTHOR(S): Hlady, V.; Jogikalmath, G.; Pungor, A.; Stuart, J. K.
CORPORATE SOURCE: Center for Biopolymers at Interfaces, Department of Bioengineering, University of Utah, Salt Lake City, UT, 84112, USA
SOURCE: Polym. Mater. Sci. Eng. (1997), 77, 588-589
CODEN: PMSEDG; ISSN: 0743-0515
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Spatial **adhesion** mapping was developed as a tool to control the efficacy of a series of glycidyloxypropyltrimethoxysilane modification steps of glass surfaces which resulted in a hydrophilic layer of end-grafted polyoxyethylene chains to prevent **adhesion** of **proteins**.
IT **25322-68-3**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(silanized glass grafted with; **adhesion** force mapping for **surface hydrophobization** steps)

L14 ANSWER 19 OF 37 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:467909 HCAPLUS
DOCUMENT NUMBER: 127:217356
TITLE: Influence of substrate hydrophobicity on the adsorption of collagen in the presence of **Pluronic** F68, albumin, or calf serum
AUTHOR(S): Dewez, Jean-Luc; Berger, Valerie; Schneider, Yves-Jacques; Rouxhet, Paul G.
CORPORATE SOURCE: Unite Chimie Interfaces Research Center Advanced Materials and Laboratoire Biochimie Cellulaire, Universite Catholique Louvain, Louvain-La-Neuve, B-1348, Belg.
SOURCE: J. Colloid Interface Sci. (1997), 191(1), 1-10
CODEN: JCISA5; ISSN: 0021-9797
PUBLISHER: Academic
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The influence of **Pluronic** F68 [a **poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide)** copolymer surfactant], human serum albumin (HSA), and fetal calf serum (FCS) on the adsorption of type I collagen by polymer substrates was investigated by radiolabeling and XPS anal. Three different kinds of polystyrene substrates with increasing level of hydrophobicity were used. Change in the state of hydration of the sorbent and **protein** surfaces appears to be the main driving force for collagen adsorption. **Pluronic** F68 strongly reduces collagen adsorption, the redn. being more pronounced with higher substrate hydrophobicity. This explains why epithelial **cell adhesion** on substrates preconditioned with a soln. of **Pluronic** F68 and collagen is strongly influenced by substrate hydrophobicity. Collagen adsorption is also reduced in the presence of HSA and FCS, but the redn. and its sensitivity to substrate hydrophobicity are lower than with **Pluronic** F68.

IT **106392-12-5, Pluronic** F68
RL: PEP (Physical, engineering or chemical process); PROC (Process) (substrate hydrophobicity effect on collagen adsorption in presence of **Pluronic** F68 or albumin or calf serum)

L14 ANSWER 20 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:224399 HCAPLUS
DOCUMENT NUMBER: 126:268499
TITLE: The adsorption and functionality of fibrinogen on **hydrophobic surfaces** modified with PEO/PPO/PEO **block copolymers**
AUTHOR(S): O'Connor, Stephen M.; Patuto, Samantha J.; Gehrke, Stevin H.; Retzinger, Gregory S.
CORPORATE SOURCE: Dep. Chem. Eng., Univ. Cincinnati, Cincinnati, OH, 45221, USA
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1997), 38(1), 559-560
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Styrene/divinylbenzene copolymer beads were coated with films of **Pluronic PEO/polypropylene oxide /PEO triblock copolymers** and incubated in citrated plasma or 125I-labeled fibrinogen soln. The amt. of **protein** adsorbed on the beads decreased with increasing PEO chain length attached to the PPO core. Incubation of fibrinogen-treated coated beads with thrombin induced aggregation only in the case of beads coated with **Pluronic** L101 or L121, which had the shortest PEO chain lengths of all **Pluronics** tested. Fibrinogen-mediated binding of coated beads to macrophage-like THP-1 **cells** was greater for beads coated with **Pluronic** L101 or L121 than for uncoated beads or beads coated with any of the other **Pluronics**.

IT **106392-12-5, Polyethylene oxide/ polypropylene oxide block copolymer**
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**triblock**; adsorption and functionality of fibrinogen on **hydrophobic surfaces** modified with **PEO/PPO/PEO block copolymers**)

L14 ANSWER 21 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:122393 HCAPLUS
DOCUMENT NUMBER: 126:158119
TITLE: Preparation and characterization of poly(ether urethane ureas) containing methyl- or fluoro substituted biphenyldiol in hard segments
AUTHOR(S): Sugiyama, Kazuo; Akita, Shusaku; Tomoi, Yoko; Hanaki, Kaori; Shiraishi, Kohei; Ueda, Kenji
CORPORATE SOURCE: Dep. Ind. Chem., Kinki Univ., Higashihiroshima, 739-21, Japan
SOURCE: Nippon Kagaku Kaishi (1997), (2), 139-146
CODEN: NKAKB8; ISSN: 0369-4577
PUBLISHER: Nippon Kagakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB Poly(ether urethane ureas) (PEUUs) including methyl- or fluoro substituted biphenyldiols (BP, nMBP, nFBP) in main chain were obtained from a typical two step addn. polymn. of polytetrahydrofuran #1000 (PTHF) to 4,4'-methylene bis(Ph isocyanate) (MPI) in the presence of the substituted biphenyldiols, using ethylenediamine (EDA) as a chain extension reagent. Biphenyldiols used were 4,4'-biphenyldiol (BP), 3,3'-dimethyl-4,4'-biphenyldiol (2MBP), 3,3',5,5'-tetramethyl-4,4'-biphenyldiol (4MBP), 3,3'-difluoro-4,4'-biphenyldiol (2FBP), 3,3',5,5'-tetrafluoro-4,4'-biphenyldiol (4FBP), and 2,2',3,3',5,5',6,6'-octafluoro-4,4'-biphenyldiol (8FBP). Polyaddn. with a molar ratio of 0.5:0.5:2:1 for the biphenyldiol:PTHF:MPI:EDA in the mixed solvent of DMSO and IBMK (iso-Bu Me ketone) (1:1) gave the PEUUs such as PEUU-BP, PEUU-nMBP, PEUU-nFBP. Parent poly(ether urethane urea) (PEUU) was also prepd. with a molar ration of 1:2:1 for PTHF:MPI:EDA. XPA spectra of the PEUUs indicated that the hydrophobic segments contg. the substituted biphenyldiol moieties are located on the surface of the PEUUs film in air. The measurements of contact angle to water confirmed that the introduction of Me groups or fluorine atoms into biphenyl ring results in higher **hydrophobicity** of PEUUs

film **surface**. The tensile modulus (E) showed the values of E = 109.1 MPa and E = 129.3 MPa for PEUU-4MBP and PEUU-4FBP, resp. PEUU-nMBP and PEUU-nFBP, adsorb both bovine serum albumin and human serum .gamma.-globulin with a single layer. In **cell** culture test, the PEUUs films showed the **adhesiveness** of mouse fibroblast (L-929). Because of their mech. and biocompatible properties, PEUU-nMBP and PEUU-nFBP are expected to be useful materials as an artificial blood vessel.

L14 ANSWER 22 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1996:298983 HCAPLUS
DOCUMENT NUMBER: 125:18921
TITLE: Polyurethanes containing covalently grafted RGD-**peptides**
AUTHOR(S): Lin, Horng-Ban; Lim, Florencia; Cooper, Stuart L.
CORPORATE SOURCE: Department Chemical Engineering, University Delaware, Newark, DE, 19716, USA
SOURCE: Adv. Sci. Technol. (1995), 12(Materials in Clinical Applications), 385-392
CODEN: ASETE5
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Peptides** based on **cell-adhesive** regions of fibronectin, Arg-Gly-Asp-Ser (RGDS), and vitronectin, Arg-Gly-Asp-Val (RGDV), were covalently bound to a polyurethane backbone via amide bonds. The polymers studied included a PTMO-polyurethane control, a carboxylated version of the control polyurethane, and three different **peptide** grafted (GRGESY, GRGDSY, and GRGDVY) polyurethanes. On hydrated samples, XPS or ESCA showed a greater increase of nitrogen concn. for the **peptide** grafted polymers which suggests that grafting of the hydrophilic **peptides** to the polyurethane augments the hard segment enrichment at the surface. Upon dehydration, the nitrogen concn. decreased for all five polymers suggesting migration of the more **hydrophobic** PTMO soft segment to the **surface**. In vitro endothelial **cell adhesion** showed an increase of **cell** attachment on prehydrated RGD-contg. **peptide** grafted polyurethanes, but not on the other polymers. This results suggest an enhancement of **peptide** d. at the aq. interface, in good agreement with the XPS studies.

L14 ANSWER 23 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:787175 HCAPLUS
DOCUMENT NUMBER: 123:173226
TITLE: Paper coating pigment composition and its use
INVENTOR(S): Gane, Patrick Arthur Charles; McGenity, Philip Martin; Preston, Janet Susan
PATENT ASSIGNEE(S): ECC International Ltd., UK
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 9509948	A1	19950413	WO 1994-GB2132	19940930
W: AU, BR, CZ, FI, GB, JP, KR				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9477873	A1	19950501	AU 1994-77873	19940930
EP 721530	A1	19960717	EP 1994-928446	19940930
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
BR 9407681	A	19970204	BR 1994-7681	19940930
JP 09504057	T2	19970422	JP 1994-510676	19940930
FI 9602512	A	19960617	FI 1996-2512	19960617
PRIORITY APPLN. INFO.:			GB 1993-20233	19931001
			WO 1994-GB2132	19940930

AB A paper coating pigment is used in papermaking where the surface of the pigment have been modified with a treating agent having a hydrophobic portion to confer hydrophobic or enhanced **hydrophobic** character on the pigment **surfaces**, to reduce the coeff. of friction of a web of coated paper prepd. therefrom. The paper-coating compn. comprises an aq. suspension of an **adhesive**, a paper-coating pigment which comprises a particulate, inorg. material which has been surface treated, prior to incorporation in the paper coating compn., with a treating agent having a nonpolar hydrophobic portion comprising .gtoreq.1 C8-30 hydrocarbon group and a polar portion capable of binding with the sites on the particle surface,and a dispersing agent for the modified particles of inorg. material. A coating compn. contg. ground chalk treated with 1% stearic acid and a latex **adhesive** was prepd. and used to coat paper giving a coeff. of friction of 0.27, compared to 0.37 for a coating compn. contg. nontreated ground chalk.

IT **25322-68-3D**, Polyethylene glycol, C8-24 alkyl ethers
RL: TEM (Technical or engineered material use); USES (Uses)
(dispersing agent; in paper coating pigment compn.)

L14 ANSWER 24 OF 37 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER:	1995:768121 HCAPLUS
DOCUMENT NUMBER:	123:208714
TITLE:	Suppression of thrombus formation during extracorporeal circulation by improved biocompatibility of dialyzer membrane and use of peptidyl antithrombogenic agents
AUTHOR(S):	Ito, Satoshi
CORPORATE SOURCE:	Medical Sch., Osaka City Univ., Japan
SOURCE:	Osaka-shi Igakkai Zasshi (1994), 43(3), 171-81 CODEN: OIGZDE; ISSN: 0386-4103
DOCUMENT TYPE:	Journal
LANGUAGE:	Japanese

AB Suppression of platelet **adhesion** and aggregation upon contact with artificial surfaces is important in procedures involving extracorporeal circulation such as hemodialysis. Two new methods for such suppression are proposed. One involves a coating of hydrophilic-hydrophobic **block copolymers** on dialyzer membranes for improved antithrombogenic effects, and the other involves use of synthetic **peptides** as antithrombogenic agents. The effects of a coating made of hydrophilic-**hydrophobic block copolymers** on the **hydrophobic surface** of a poly(acrylonitrile) (PAN) hemodialyzer were evaluated in terms of

platelet stimulation. Coating anchored hydrophobic **blocks** of the **copolymer** on the surface and the hydrophilic blocks were therefore oriented toward the blood/hemodialyzer interface, according to results of water-wettability measurements. The coating procedure reduced stimulation of platelets in contact with PAN, which was evaluated by assay of the intracellular calcium ion concn. of the platelets. SEM showed suppressed platelet **adhesion** on the coated PAn surface. Platelet-fibrinogen is a sequence of 11 **amino** acids termed B12. Synthesized B12 and shorter-chain analogs dose-dependently suppressed platelet aggregation in vitro, and continuous injection of B12 inhibited platelet **adhesion** in vivo. These synthetic **peptides** could be used as antithrombogenic agents during extracorporeal circulation. These findings may contribute to improved biocompatibility during hemodialysis.

L14 ANSWER 25 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:111299 HCAPLUS
DOCUMENT NUMBER: 122:39653
TITLE: Effect of surface microphase-separated structure on interaction between biological components and multiphase polymer surface
AUTHOR(S): Takahara, Atsushi; Korehisa, Kinzo; Ge, Shou-Ren; Kajiyama, Tisato
CORPORATE SOURCE: Faculty of Engineering, Kyushu University, Fukuoka, 812, Japan
SOURCE: J. Vac. Sci. Technol., A (1994), 12(5), 2956-61
CODEN: JVTAD6; ISSN: 0734-2101
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Polystyrene-poly(butadiene-co-hydroxylated butadiene)-polystyrene **triblock copolymer** (SHBS) with hydrophobic-hydrophilic microdomain structure has been prepd. through the hydroxylation of polybutadiene (PBD) **block** of anionically polymd. SBS **triblock copolymer**. XPS and contact angle measurements revealed that the environmentally induced surface reorganization took place after exposure of the film to water in the case of low degree of hydroxylation of PBD block. The interaction between plasma **protein** and the SHBS surface has been studied on the basis of TEM observations of the specimen after immersing it in human serum albumin (HSA) and human fibrinogen (HFN) solns. The adsorbed HSA and HFN were labeled with colloidal gold and the modified PBD block was stained with osmium tetroxide. The domain recognition of plasma **protein** can be analyzed. The amt. of plasma **protein** adsorbed per unit area on PS domain did not depend on the degree of hydroxylation of PBD block. However, the amt. of plasma **protein** adsorbed on the hydroxylated PBD block decreased with an increase in degree of hydroxylation. These behaviors can be ascribed to the selective **protein** adsorption onto hydrophobic phase in order to minimize the interfacial-free energy between polymer surface and plasma **protein** soln.

L14 ANSWER 26 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:663647 HCAPLUS
DOCUMENT NUMBER: 121:263647
TITLE: Static secondary ion mass spectrometric investigation of the glow-discharge-treated

surfaces
AUTHOR(S): Sheu, M. S.; Hoffman, A. S.; Ratner, B. D.; Feijen, J.
CORPORATE SOURCE: Center Bioengineering, Univ. Washington, Seattle, WA, 98195, USA
SOURCE: J. Appl. Polym. Sci.: Appl. Polym. Symp. (1994), 54(Plasma Deposition of Polymeric Thin Films), 29-40
CODEN: JPSSDD; ISSN: 0271-9460
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Previously, a nonfouling surface contg. **polyethylene oxide** (**PEO**) has been developed using a glow discharge process. In this process, a PEO **surfactant** is first deposited on a **hydrophobic** polymer **surface** via a solvent evapn. method. Then the surfactant is crosslinked to the substrate surface by an argon RFGD treatment. A dramatic redn. of **protein** adsorption and platelet **adhesion** on the treated surface was obsd. only when treated with a low power (<5 W) and a short treatment time (30 s). In this study, a static secondary ion mass spectrometry (SSIMS) was used to investigate the possible structure changes of PEO chains in the glow-discharge-treated surfactants. Results from this study suggest that the increased **protein** adsorption and platelet **adhesion** at longer treatment times (>30 s) are most likely due to degrdn. of PEO chains in the RGFD-treated surfactant (along with minor surface oxidn.).

IT **25322-68-3, Polyethylene oxide**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(static SIMS investigation of glow-discharge-treated surfaces)

L14 ANSWER 27 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:307389 HCAPLUS
DOCUMENT NUMBER: 120:307389
TITLE: Analysis on the surface adsorption of PEO/PPO/PEO **triblock copolymers** by radiolabeling and fluorescence techniques
AUTHOR(S): Amiji, Mansoor M.; Park, Kinam
CORPORATE SOURCE: Sch. Pharm., Purdue Univ., West Lafayette, IN, 47907, USA
SOURCE: J. Appl. Polym. Sci. (1994), 52(4), 539-44
CODEN: JAPNAB; ISSN: 0021-8995
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The adsorption of **poly(ethylene oxide)/poly(propylene oxide)/poly(ethylene oxide)** (**PEO/PPO/PEO**) **triblock copolymers** (**Pluronic**) on dimethyldichlorosilane-treated glass (DDS-glass) was examd. The surface concn. of 125I-labeled **Pluronic** F-68 (76/30/76) reached a max. of 0.3 .mu.g/cm2 when the bulk concn. in the adsorption soln. was 3.0 mg/mL. Above 5.0 mg/mL, the surface **Pluronic** F-68 concn. started decreasing and reached 0.17 .mu.g/cm2 when the bulk concn. for adsorption was 10 mg/mL. The surface concn. of **Pluronic**

F-108 (129/56/129), on the other hand, increased to 4.0 .mu.g/cm2 at the same bulk concn. Fluorescence spectroscopic studies using pyrene suggested that the **Pluronic** F-68 mols. self-assocd. at the bulk concn. of 5.0 mg/mL and above. Because the aggregates are expected to expose the hydrophilic PEO segments to water, they may have lower affinity to DDS-glass. Aggregation of **Pluronic** F-68 also decreases the no. of individual **Pluronic** mols. for adsorption. Pyrene fluorescence in **Pluronic F-108** soln., however, suggests that **Pluronic F-108** mols. do not form aggregates. Apparently, the high surface concns. of **Pluronic F-108** may result from the preferential adsorption of individual mols. in multilayers. This explains the high effectiveness of **Pluronic F-108** in preventing **protein** adsorption and platelet **adhesion** when adsorbed on to the **hydrophobic surface**.

IT **106392-12-5, Pluronic**
RL: BIOL (Biological study)
(triblock, surface adsorption of, fluorescence and radiolabeling techniques study of)

L14 ANSWER 28 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:307385 HCAPLUS
DOCUMENT NUMBER: 120:307385
TITLE: Inhibition of platelet spreading from plasma onto glass by an adsorbed layer of a novel fluorescent-labeled **poly(ethylene oxide)**/poly(butylene oxide) **block copolymer**: characteristics of the exclusion zone probed by means of polystyrene beads and macromolecules
AUTHOR(S): Gingell, D.; Owens, N.
CORPORATE SOURCE: Dep. Anat. Dev. Biol., Univ. Coll., London, WC1E 6BT, UK
SOURCE: J. Biomed. Mater. Res. (1994), 28(4), 491-503
CODEN: JBMRBG; ISSN: 0021-9304
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors have investigated the anti-**adhesive** properties of a newly synthesized fluorescent **triblock copolymer** contg. **poly(ethylene oxide)**. This adsorbs from aq. soln. onto glass that has been rendered hydrophobic. When the polymer-treated surface was exposed to human platelet-rich plasma (PRP) or whole blood at 37.degree.C, platelet **adhesion** and spreading were prevented. Avid **adhesion** and rapid platelet spreading occurred along tracks scraped in the adsorbed polymer coating, as seen by video-enhanced interference reflection microscopy. Leukocytes from whole blood are eventually able to adhere to the polymer-treated surface and were seen to remove labeled polymer from their vicinity and accumulate it at the **cell** body. Interferometry using polystyrene spheres showed that they do not adhere to polymer-coated glass and are unable to approach closer than 70-95 nm. On scraped tracks, beads make mol. contacts with the glass. Because the fully extended solvated (EO)400 arms may extend up to 100 nm from the glass, this suggests that the polymer forms a monolayer with the hydrophilic arms projecting into the water,

whereas the hydrophobic (BO)55 segment binds the mol. to the **hydrophobic surface**. Another **triblock copolymer** with shorter hydrophilic arms allows particles to approach more closely.

L14 ANSWER 29 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:144021 HCAPLUS
DOCUMENT NUMBER: 120:144021
TITLE: **Adhesion** of Staphylococci to chemically modified and native polymers, and the influence of preadsorbed fibronectin, vitronectin and fibrinogen
AUTHOR(S): Paulsson, M.; Kober, M.; Freij-Larsson, C.; Stollenwerk, M.; Wesslen, B.; Ljungh, A.
CORPORATE SOURCE: Dep. Med. Microbiol., Univ. Lund, Lund, Swed.
SOURCE: Biomaterials (1993), 14(11), 845-53
CODEN: BIMADU; ISSN: 0142-9612
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A com. available poly(ether urethane), polyethylene, and modifications of these polymers have been compared with respect to adsorption of fibronectin, fibrinogen and vitronectin. The **adhesion** of Staphylococcal strains (characterized for ability to bind immobilized **proteins**, **cell surface hydrophobicity** and charge) was studied by bioluminescence with and without preadsorption of **proteins** to the surfaces. The least amt. of **proteins** and the fewest bacteria adhered to the amphiphilic surfaces. When polymers were preincubated with plasma or albumin, lower nos. of bacteria adhered, except to Pellethane grafted with PEG 20,000, to which coagulase-neg. Staphylococci adhered to a higher extent.
IT **106392-12-5**, **Pluronic** PE 9400
RL: BIOL (Biological study)
(Pellethane surface modified by, **adhesion** of Staphylococci to, **proteins** adsorption effect on)

L14 ANSWER 30 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1993:480133 HCAPLUS
DOCUMENT NUMBER: 119:80133
TITLE: Surface properties of RGD-**peptide** grafted polyurethane **block copolymers**: Variable take-off angle and cold-stage ESCA studies
AUTHOR(S): Lin, Horng Ban; Lewis, Kenneth B.; Leach-Scampavia, Deborah; Ratner, Buddy D.; Cooper, Stuart L.
CORPORATE SOURCE: Dep. Chem. Eng., Univ. Wisconsin, Madison, WI, 53706, USA
SOURCE: J. Biomater. Sci., Polym. Ed. (1993), 4(3), 183-98
CODEN: JBSEEA; ISSN: 0920-5063
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Variable take-off angle and cold-stage ESCA measurements were utilized to analyze the surface compn. of five polyurethane **block copolymers**. The polymers studied included a PTMO-polyurethane control, a carboxylated version of the control polyurethane, and three different **peptide** grafted (GRGESY,

GRGDSY, and GRGDVY) polyurethanes. On dry samples the nitrogen signal detected using ESCA decreased with increasing take-off angle (i.e. as the specimen was probed closer to the surface) for all five polymers. This was believed to be due to the depletion of nitrogen-contg. urethane hard segments at the surface. For all five polymers, the surface nitrogen concn., assocd. with the hard segment, increased upon hydration. A greater increase of nitrogen concn. was obsd. for the **peptide** grafted polymers which suggests that grafting of the hydrophilic **peptides** to the polyurethane augments the hard segment enrichment at the surface upon hydration. Upon dehydration, the nitrogen concn. decreased for all five polymers suggesting migration of the more **hydrophobic** PTMO soft segment to the **surface**. In vitro endothelial **cell adhesion** showed an increase of **cell** attachment on prehydrated RGD-contg. **peptide** grafted polyurethanes, but not on the other polymers. This result suggests an enhancement of **peptide** d. at the aq. interface, in good agreement with the ESCA studies.

L14 ANSWER 31 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1992:557571 HCAPLUS
DOCUMENT NUMBER: 117:157571
TITLE: The effect of surface hydrophilicity on biomaterial-leukocyte interactions
AUTHOR(S): Lim, Florencia; Cooper, Stuart L.
CORPORATE SOURCE: Dep. Chem. Eng., Univ. Wisconsin, Madison, WI, 53706, USA
SOURCE: ASAIO Trans. (1991), 37(3), M146-M147
CODEN: ASATEJ; ISSN: 0889-7190
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Leukocyte **adhesion** onto a series of polyetherurethanes contg. various ratios of **polyethylene oxide** (**PEO**) to polytetramethylene **oxide** (PTMO) in the soft segment was evaluated using an in vitro series shunt. The deposition of polymorphonuclear (PMN) and mononuclear (MN) leukocytes was measured quant. using labeling techniques. Results showed that H/H-1, the most **hydrophobic surface**, adsorbed higher amts. of PMN leukocytes. It was also obsd. that for most materials the no. of PMN and MN leukocytes deposited reached a plateau within 15 min. Unlike MN adherence, the presence of plasma **proteins** increased the no. of PMN leukocytes deposited on the materials.

L14 ANSWER 32 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1990:42489 HCAPLUS
DOCUMENT NUMBER: 112:42489
TITLE: **Protein** adsorption from buffer and plasma onto hydrophilic-hydrophobic **poly**(**ethylene oxide**)-polystyrene multiblock copolymers
AUTHOR(S): Grainger, D. W.; Okano, T.; Kim, S. W.
CORPORATE SOURCE: Dep. Pharm., Univ. Utah, Salt Lake City, UT, 84112, USA
SOURCE: J. Colloid Interface Sci. (1989), 132(1), 161-75
CODEN: JCISA5; ISSN: 0021-9797
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effect of substrate hydrophilic-hydrophobic balance on the adsorption of **proteins** from buffer and plasma was investigated using a series of amphiphilic multiblock copolymers composed of **poly(ethylene oxide)** (**PEO**) and polystyrene (PS). Adsorption of albumin, fibrinogen, and IgG was monitored from single-component buffer, multicomponent buffer, and plasma solns. in contact with polymer-coated beads. **Protein** adsorption from buffer demonstrated kinetics and adsorption totals that correlated to the hydrophilic-**hydrophobic** content of the PEO-PS **surfaces**; however, no significant correlations existed between bulk compn., in vitro, and ex vivo blood compatibility tests. From plasma, adsorption to the surfaces showed 2 interesting results. First, min. levels of **protein** adsorption witnessed on a PEO-PS (40% PEO) copolymer were not obsd. in the competitive adsorption of the same species from buffer. These results were correlated to min. platelet **adhesion** and activation in vitro and optimal whole blood compatibility ex vivo. Second, fibrinogen uptake from plasma exhibited transient, fluctuating kinetics on both the PEO and PS homopolymer surfaces, while 2 PEO-PS copolymer surfaces showed no fluctuations. Overall, few correlations between buffer adsorption, plasma adsorption, or resulting in vitro and exo vivo analyses were obsd. Buffered systems oversimplify the **protein** adsorption scenario and lack significant correlations to surface interactions in whole blood and plasma.

IT **25322-68-3, Polyethylene oxide**
RL: USES (Uses)
(**protein** adsorption from buffer and plasma onto, polystyrene **block copolymer** in relation to)

L14 ANSWER 33 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1982:533523 HCAPLUS
DOCUMENT NUMBER: 97:133523
TITLE: Plasma interaction on **block copolymers** as determined by platelet **adhesion**
AUTHOR(S): Helmus, Michael N.; Malhotra, Om P.; Gibbons, Donald F.
CORPORATE SOURCE: Dep. Biomed. Eng., Case West. Reserve Univ., Cleveland, OH, 44106, USA
SOURCE: Adv. Chem. Ser. (1982), 199(Biomater.: Interfacial Phenom. Appl.), 81-93
CODEN: ADCSAJ; ISSN: 0065-2393
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A series of **block copolymers**, with controllable domain morphol., were tested to det. the effect of surface wettability, morphol., and chem. on the attachment of platelets. The surfaces were first exposed to plasma for 3 s or 3 min, and then to platelets suspended in Tyrode's buffer in 0.35% albumin (pH 7.4). The most **hydrophobic surface**, styrene-butadiene-styrene (SBS) [9003-55-8] attached the most platelets, followed by the less hydrophobic polyurethane, and lastly by the hydrophilic polystyrene-**poly(ethylene oxide)** (PS-**PEO**) [25267-79-2], which attached essentially none. Phase sepn. in polyurethane and in SBS significantly increased the adherence of platelets after exposure to

platelet-poor plasma, for 3 s and 3 min, resp. No such difference was obsd. in PS-PEO. The SBS, with and without long-range order, attached significantly more platelets at 3 s than at 3 min. The SBS **block copolymer**, as compared with hydrophobic glass, appears to adsorb fibrinogen loosely, but more tightly than hydrophilic glass. Phase sepn. causes the **protein** to attach more strongly.

L14 ANSWER 34 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1982:428562 HCAPLUS
DOCUMENT NUMBER: 97:28562
TITLE: Role of microphase separated structure in interaction between polymer and platelet
AUTHOR(S): Okano, T.; Shimada, M.; Shinohara, I.; Kataoka, K.; Akaike, T.; Sakurai, Y.
CORPORATE SOURCE: Inst. Med. Eng., Tokyo Women's Med. Coll., Tokyo, 162, Japan
SOURCE: Adv. Biomater. (1982), 3, 445-50
CODEN: ABIODQ; ISSN: 0272-3840
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Block copolymers** from 2-hydroxyethyl methacrylate and styrene were synthesized to elucidate the effect of hydrophilic and hydrophobic microdomains in interaction of the polymer with blood platelets. Platelet **adhesion** and deformation on the **block polymer** surface with or without **protein** precoating were studied by the microsphere column method and compared with the homogeneous surface of poly(hydroxyethyl methacrylate) (I) [25249-16-5] and polystyrene (II) [9003-53-6]. The **block copolymer** showed less platelet **adhesion** than the homopolymers. In addn., the no. of adhered platelets was const. and independent of albumin and/or .gamma.-globulin coating. In the homopolymer systems, however, the no. of adhered platelets was decreased when precoated by **proteins**. The morphol. of the adhered platelet on the polymer surfaces was also different for each polymer. **Adhesion** and aggregation of platelets on I and II surfaces were obsd., while only isolated adhered platelets without aggregation were obsd. on the **block copolymer** surface. The organized structure of the adsorbed **proteins** formed on the **block copolymer surface** with hydrophilic and **hydrophobic** domains plays an important role in antithrombogenicity.

L14 ANSWER 35 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1981:79849 HCAPLUS
DOCUMENT NUMBER: 94:79849
TITLE: Determination of **cell**/medium interfacial tensions from contact angles in aqueous polymer systems
AUTHOR(S): Schuerch, Samuel; Gerson, Donald F.; McIver, Donald J. L.
CORPORATE SOURCE: Dep. Biophys. Med., Univ. West. Ontario, London, ON, N6A 5C1, Can.
SOURCE: Biochim. Biophys. Acta (1981), 640(2), 557-71
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The contact angles on **cell** layers of a series of polymeric droplets from aq. 2-phase systems of dextran and poly(ethylene glycol) have been used to det. the crit. or limiting interfacial tension for spreading on the **cell** layers. Test droplets of the denser dextran-rich phase were formed in the lighter poly(ethylene glycol)-rich phase. The interfacial tensions, .gamma., between the phases were detd. with the pendant drop method, and a linear relation was found between .gamma.-1/2 and the cosine of the angle the droplets made with the **cell** layers (Good-Girifalco plot). The limiting or crit. interfacial tension, .gamma.c, for spreading on the **cell** layers was thus detd. The value of .gamma.c is a measure of the interfacial energy of the **cell**/bathing medium interface. Values of .gamma.c obtained by this method are 0.65 and 0.84 .mu.N/m for human erythrocytes and neutrophils, resp., 0.93 .mu.N/m for porcine pulmonary macrophages, 0.75-3.60 .mu.N/m for various transformed murine lymphoid **cell** lines, and 2.53 .mu.N/m for Balb/c murine spleen lymphocytes. Exposure to various agents has differing effects on .gamma.c. Concanavalin A reduces .gamma.c, and bacterial lipopolysaccharide increases .gamma.c of murine spleen lymphocytes. The Ca ionophore, A23187, increases .gamma.c of both porcine pulmonary macrophages and murine spleen lymphocytes. This method provides a quant. approach to the **cell surface** energy and **hydrophobicity** which are thought to play an important role in membrane-mediated phenomena and in **cell adhesion**.

IT **25322-68-3**
RL: ANST (Analytical study)
(dextran aq. soln. with, interfacial tension of, with animal **cells**, detn. of)

L14 ANSWER 36 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1981:71443 HCAPLUS
DOCUMENT NUMBER: 94:71443
TITLE: Role of microphase separated structure on the interfacial interaction of polymer with blood
AUTHOR(S): Okano, Teruo; Nishiyama, Shoji; Shinohara, Isao; Akaike, Toshihiro; Sakurai, Yasuhisa; Kataoka, Kazunori; Tsuruta, Teiji
CORPORATE SOURCE: Dep. Polymer Chem., Waseda Univ., Tokyo, 160, Japan
SOURCE: Polym. Prepr., Am. Chem. Soc., Div. Polym. Chem. (1979), 20(1), 571-4
CODEN: ACPPAY; ISSN: 0032-3934
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The affinity order of plasma **proteins** for a hydrophilic surface [poly(2-hydroxyethyl methacrylate) [25249-16-5]] was albumin > .gamma.-globulin > fibrinogen add the order was reversed for **hydrophobic surface** (polystyrene [9003-53-6]). In the 2-hydroxyethyl methacrylate-styrene copolymer [26010-51-5] albumin was selectively adsorbed on hydrophilic portion while .gamma.-globulin and fibrinogen selectively adsorbed on the hydrophobic portion. Platelet **adhesion** on copolymers was lower than on the homopolymers. Platelet deformation on the surface of homopolymers and random copolymer were large while it was slight on **block copolymers**. The hydrophilic and hydrophobic microphase sepd. structures show antithrombogenic

properties due to block platelet **adhesion** and aggregation of the initial process in thrombus formation.

L14 ANSWER 37 OF 37 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1980:135339 HCAPLUS
DOCUMENT NUMBER: 92:135339
TITLE: Dependence of albumin-fibrinogen simple and competitive adsorption on surface properties of biomaterials
AUTHOR(S): Brash, J. L.; Uniyal, S.
CORPORATE SOURCE: Dep. Chem. Eng., McMaster Univ., Hamilton, ON, Can.
SOURCE: J. Polym. Sci., Polym. Symp. (1979), 66(Med. Polym.: Chem. Probl.), 377-89
CODEN: JPYCAQ; ISSN: 0360-8905
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The adsorption of fibrinogen and albumin from solns. of the **proteins**, singly and in mixts., by biomaterial surfaces was studied. Hydrophilic polyurethanes show very small surface concn. (.GAMMA.) values (.ltoreq.10%) which suggests minimal **protein** interactions with the surface. The hydrophobic polyurethanes based on polypropylene glycol (PPG) showed high surface concns. of both **proteins**. While the fibrinogen value was about the same as for other **hydrophobic surfaces** such as polystyrene [9003-53-6] and siliconized glass, the albumin surface concn. was a factor of .apprx.3 > than any other surface. Since it has been shown that adsorbed fibrinogen increased platelet **adhesion** whereas albumin reduces it a parameter .GAMMA.F (F/A) was proposed, .GAMMA.F potential for surface fibrin formation and platelet **adhesion**; F:A = mole ratio of thrombogenic fibrinogen: antithrombogenic albumin. This parameter increases in the order PPG 1200 based polyurethane < siliconized glass < PEG 1540 based polyurethane < PEG 600 based polyurethane < polystyrene < collagen. These values correlate well with known thrombogenic tendencies of these materials. In comparing these **proteins** parameters with platelet reactivity factors (PRF) for the same surfaces, PRF being made up of contributions from **adhesion** and release of granule constituents from adherent platelets and is a measure of platelet thrombi generation tendency, the order of PRF was PEG 1540 < PEG 600 < polystyrene < PPG 1200 < collagen. Thus, the correlation between PRF and .GAMMA.F is reasonably good for these materials and has validity as thrombogenic indicators.

IT **25322-68-3D**, urethane polymers
RL: PRP (Properties)
(adsorption of albumin and fibrinogen from solns. on surface of)

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 10:59:13 ON 06 JUN 2002)
L15 79 S L14
L16 53 DUP REM L15 (26 DUPLICATES REMOVED)

L16 ANSWER 1 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2002-241421 [29] WPIDS
DOC. NO. CPI: C2002-072581
TITLE: Adhering a **biomolecule** to a substrate for patterning a surface with a **biomolecules**,

comprises treating substrate with a surfactant compound and a **biomolecule.**

DERWENT CLASS: A96 B04 D16
INVENTOR(S): BHATIA, S N; CHEN, C S; JASTROMB, W E; TAN, J; TIEN, J Y
PATENT ASSIGNEE(S): (UYJO) UNIV JOHNS HOPKINS SCHOOL MEDICINE
COUNTRY COUNT: 95
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2002004113	A2	20020117	(200229)*	EN	71

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

AU 2001083492 A 20020121 (200234)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002004113	A2	WO 2001-US41344	20010711
AU 2001083492	A	AU 2001-83492	20010711

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2001083492	A	Based on	WO 200204113

PRIORITY APPLN. INFO: US 2000-217464P 20000711
AN 2002-241421 [29] WPIDS
AB WO 200204113 A UPAB: 20020508
NOVELTY - Adhering (M1) a **biomolecule** to a substrate (I) comprises treating (I) with a surfactant compound and a **biomolecule**, is new.

DETAILED DESCRIPTION - Adhering (M1) a **biomolecule** to a substrate (I) comprising treating (I) with a surfactant compound and a **biomolecule** or M1 comprising:

(a) providing a binding agent onto a template having a desired pattern; contacting the template with the substrate so that the binding agent is transferred to the substrate in a pattern corresponding to the template;

(b) providing a non-**adhesive** agent to the substrate having the binding agent pattern, where the non-**adhesive** agent adheres to the substrate area not comprising the binding agent; and

(c) providing **biomolecules** to the substrate, where the **biomolecules** adhere to the binding agent but not the non-**adhesive** agent; or

(d) providing a surfactant onto template;

(e) contacting the template with the substrate so that the surfactant is transferred to the substrate in a pattern corresponding to the template;

(f) providing a binding agent to the substrate having the surfactant pattern, where binding agent adheres to the substrate area not comprising the surfactant;

(g) providing a non-**adhesive** agent to the **surface** having the pattern of **hydrophobic** agents;

(h) providing a binding agent that binds to hydrophilic agent; and

(i) providing **biomolecules** to the surface, where the **biomolecules** adhere to the binding agent but not the non-**adhesive** agent.

An INDEPENDENT CLAIM is also included for a device (II) for adhering a **biomolecule** in a predetermined position comprising a substrate having several cytophilic regions that can adhere a **biomolecule** on the substrate by cytophobic regions to which the **biomolecules** do not adhere contiguous with the cytophilic regions, where the cytophobic regions comprise one or more surfactant compounds.

USE - M1 is useful for adhering a **biomolecule** to a substrate especially for patterning a surface with a **biomolecules**. The method comprises providing a mask to the surface, where the mask has a desired pattern of open areas and closed areas, providing a non-**adhesive** agent to the surface, and then a binding agent, and finally providing **biomolecules** to the surface, where the **biomolecules** adhere to binding agent but not the non-**adhesive** agent (claimed). (M1) is useful for:

(1) capturing the desired **biological molecule** or **cell**;

(2) controlling and studying the role of the microenvironment around **cells**, e.g., hapatocytes, in vitro;

(3) **cell** and tissue engineering;

(4) tailoring biomaterial implants; and

(5) fundamental studies on signaling in **cell**-**cell** and **cell**-matrix interactions.

M1 may be:

(1) used to create patterns of **cells** in which **cells** are isolated on islands to prevent **cell** to **cell** contact, in which different types of **cells** are specifically brought into contact or in which **cells** of one or more types are brought into a pattern which corresponds to the pattern or architecture found in natural tissue;

(2) useful in bioreactors for the production of **proteins** or antibodies, especially by recombinant **cells**;

(3) useful in tissue culture;

(4) useful for the creation of artificial tissues for grafting or implantation;

(5) useful artificial organs such as artificial liver devices for providing liver function in cases of liver failure;

(6) useful for generating artificial tissues to adhere to the surfaces of prosthetic or implantable devices to prevent connective tissue encapsulation;

(7) useful in non-fouling domains of diagnostics, drug delivery, in vitro microarrays.

(M1) is also useful for materials and methods for isolating and manipulating particular individual **cells** which are present on a plate containing a great multiplicity of **cells** separated one from another by only a few microns. (II) is used to

promote ordered **cell-cell** contact or to bring **cells** close to one another, but prevent such contact. (II) are useful in the creation of artificial tissues for research or in vivo purposes and in connection with creating artificial organs such as artificial liver devices. (II) is also useful in connection with generating surfaces for prosthetic or implantable devices. Assays using an immobilized array of **nucleic** acid sequences may be used for determining the sequence of an unknown **nucleic** acid, single nucleotide polymorphism (SNP) analysis, analysis of gene expression patterns from a particular species, tissue, **cell** type, etc, gene identification, etc. Patterned plates with a grid pattern, can be used in cytometry for e.g., the numbers or ratios of different types of **cells** in a sample.

ADVANTAGE - Enables the production of a patterned surface that does not require covalent linkage or other specialized materials or equipment and the surfactant compound need not be covalently linked to the substrate for good performance results. (I) is simple, chemically-generic tool for patterning non-**adhesive** domains, e.g. by using PEO (undefined).

Dwg.0/8

L16 ANSWER 2 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 2002:271136 SCISEARCH
THE GENUINE ARTICLE: 533XN
TITLE: Staphylococcus aureus **adhesion** to self-assembled monolayers: effect of surface chemistry and fibrinogen presence
AUTHOR: Tegoulia V A (Reprint); Cooper S L
CORPORATE SOURCE: Univ Delaware, Dept Chem Engn, Newark, DE 19716 USA; N Carolina State Univ, Raleigh, NC 27695 USA
COUNTRY OF AUTHOR: USA
SOURCE: COLLOIDS AND SURFACES B-BIOINTERFACES, (APR 2002) Vol. 24, No. 3-4, pp. 217-228. Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS. ISSN: 0927-7765.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 60

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Staphylococcus aureus **adhesion** on self-assembled monolayers (SAMs) formed by the adsorption of alkanethiols on transparent gold films has been studied in real time under well-defined flow conditions using a radial flow chamber and an automated videornicroscopy system. SAMs terminated with methyl, hydroxyl, carboxylic acid and tri(ethylene oxide) groups were investigated. SAMs were characterized using contact angle measurements, ellipsometry and X-ray photoelectron spectroscopy. **Adhesion** experiments using the Newman strain of S. aureits were performed on bare monolayers and monolayers pre-incubated with fibrinogen. **Adhesion** was round to be lowest on the ethylene oxide-bearing surfaces, followed by the hydroxyl surfaces. **Adhesion** on the carboxylic- and methyl-terminated SAMs was much higher. Bacterial **adhesion** was higher on the **hydrophobic surfaces**. Pre-incubation of **surfaces** with fibrinogen minimized the effect of the surface properties of the substrate. **Adhesion** was increased on all surfaces when fibrinogen was present and no significant differences

were observed between **adhesion** to the different SAMs. This study showed that surfaces rich in ethylene oxide groups can be effectively used to prevent bacterial **adhesion**. However, under physiological conditions, most of the substrate properties are masked by the presence of the adsorbed **protein** layer and the effect of substrate properties on bacteria **adhesion** under flow is minimal.

L16 ANSWER 3 OF 53 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2002146676 MEDLINE
DOCUMENT NUMBER: 21871297 PubMed ID: 11879710
TITLE: Measurement of hydrophobic interactions of mammalian **cells** grown in culture.
AUTHOR: Ghebeh Hazem; Gillis Jennifer; Butler Michael
CORPORATE SOURCE: Department of Microbiology, University of Manitoba, 118 Buller Bldg., Winnipeg, Manitoba, Canada R3T 2N2.
SOURCE: JOURNAL OF BIOTECHNOLOGY, (2002 Apr 25) 95 (1) 39-48. Journal code: 8411927. ISSN: 0168-1656.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200204
ENTRY DATE: Entered STN: 20020307
Last Updated on STN: 20020501
Entered Medline: 20020430

AB An assay was developed to measure the hydrophobic interactions of commonly used mammalian **cell** lines grown in culture. The assay depends on the loss of **cells** from an aqueous suspension following vortexing with a hydrophobic oil phase. This allowed the determination of a hydrophobicity index, which was significantly higher for Chinese Hamster Ovary (CHO) **cells** than either a murine hybridoma (CC9C10) or a myeloma (SP2/0). This suggests that CHO **cells** may have a higher intrinsic **cell surface hydrophobicity**. The assay was also used to study the effect of different additives on the hydrophobic interactions of the **cells**. A dose-dependent effect was shown for the non-ionic **surfactant, Pluronic** F68, in reducing the **hydrophobic** interaction of the CHO **cells**. However, the pattern of the decrease due to **Pluronic** F68 was different for each **cell** line. A higher concentration of **Pluronic** F68 (0.2%) was required to eliminate the hydrophobic interactions of CHO **cells** compared to either myelomas or hybridomas, where only 0.05% was required to reduce these interactions to a similar level. Several oils were found suitable for this assay although canola oil maximized the sensitivity of the measured changes. The assay may be useful in monitoring changes in the hydrophobic interactions of mammalian **cells** during growth in bioreactors. This may be important in optimizing the concentration of **cell** protectants such as **Pluronic** F68 in agitated cultures.

L16 ANSWER 4 OF 53 BIOSIS
ACCESSION NUMBER: 2001:508430 BIOSIS
DOCUMENT NUMBER: PREV200100508430
TITLE: Composition and method for regulating the **adhesion** of **cells** and

biomolecules to **hydrophobic surfaces**.
AUTHOR(S): Caldwell, Karin D. (1); Tresco, Patrick A.; Neff, Jennifer
CORPORATE SOURCE: (1) Salt Lake City, UT USA
ASSIGNEE: University of Utah Research Foundation
PATENT INFORMATION: US 6284503 September 04, 2001
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Sep. 4, 2001) Vol. 1250, No. 1, pp. No Pagination. e-file.
ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

AB The present invention is directed to a composition and method for regulating the **adhesion** of **cells** and **biomolecules** to **hydrophobic surfaces** and **hydrophobic** coated **surfaces**. The composition is a **biomolecule** conjugated **end-group** activated **polymer** (FGAP). The **biomolecule** conjugated **EGAP** can be put to numerous uses including **cell adhesion**, **cell** growth, **cell** sorting, and other biological assays.

L16 ANSWER 5 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2001-425043 [45] WPIDS
DOC. NO. NON-CPI: N2001-315356
DOC. NO. CPI: C2001-128534
TITLE: Preparing patterned layer of aligned carbon nanotubes on substrate for semiconductors, includes applying polymeric material pattern on substrate using soft lithographic technique, carbonizing or synthesizing aligned carbon nanotubes layer.
DERWENT CLASS: A35 A89 E12 E36 L03 U11 U12
INVENTOR(S): DAI, L; HUANG, S; MAU, A
PATENT ASSIGNEE(S): (CSIR) COMMONWEALTH SCI & IND RES ORG
COUNTRY COUNT: 94
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001021863	A1	20010329	(200145)*	EN	26
AU 2000076340	A	20010424	(200145)		

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001021863	A1	WO 2000-AU1180	20000922
AU 2000076340	A	AU 2000-76340	20000922

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2000076340 A	Based on		WO 200121863

PRIORITY APPLN. INFO: AU 1999-3041 19990923
AN 2001-425043 [45] WPIDS
AB WO 200121863 A UPAB: 20010813
NOVELTY - Preparing a patterned layer of aligned carbon nanotubes on a substrates using a soft lithographic technique.

DETAILED DESCRIPTION - Preparing a patterned layer of aligned carbon nanotubes on a substrate including:

(a) applying a pattern of polymeric material on the surface of a substrate capable of supporting nanotube capable of supporting nanotube growth using a soft lithographic technique;

(b) subjecting the polymeric material to carbonization to form a patterned layer of carbonized polymer on the surface of the substrate; or

(c) synthesizing a layer of aligned carbon nanotubes on regions of the substrate to which carbonized polymer is not attached to provide a patterned layer of aligned carbon nanotubes on the substrate.

INDEPENDENT CLAIMS are also included for:

(1) a patterned carbon nanotube film prepared using the claimed method;

(2) a device comprising a patterned carbon nanotube film prepared by the claimed method; and

(3) a photovoltaic **cell** comprising a patterned carbon nanotube film prepared by the claimed method.

USE - Used for photonic and electronic devices for use as electron field emitters in panel displays, single molecular transistors, scanning probe microscope tips, gas electrochemical energy storages, catalyst and **proteins/DNA** supports, artificial actuators, chemical sensors, molecular filtration membranes, energy absorbing materials, semiconductors, molecular transistors and other opto-electronic devices.

ADVANTAGE - Allows resolutions up to a sub-micrometer scale.

DESCRIPTION OF DRAWING(S) - Figure 2 is a schematic showing the stages involved in the preparation of a pattern layer of aligned carbon nanotubes.

Dwg.2/6

L16 ANSWER 6 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 2001:412924 SCISEARCH
THE GENUINE ARTICLE: 431EJ
TITLE: Effect of **surface hydrophobicity** on adsorption and relaxation kinetics of albumin and fibrinogen: Single-species and competitive behavior
AUTHOR: Wertz C F; Santore M M (Reprint)
CORPORATE SOURCE: Lehigh Univ, Dept Chem Engn, Bethlehem, PA 18015 USA (Reprint)
COUNTRY OF AUTHOR: USA
SOURCE: LANGMUIR, (15 MAY 2001) Vol. 17, No. 10, pp. 3006-3016.
Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA.
ISSN: 0743-7463.
DOCUMENT TYPE: Article; Journal

LANGUAGE: English
REFERENCE COUNT: 60
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB This work compares the spreading and relaxation rates of albumin and fibrinogen, inferred from single-component and competitive adsorption kinetic experiments, on model. **surfaces** of varying **hydrophobicity**. Kinetics from the single-component studies revealed a constant spreading rate, where the adsorbed **protein** footprint grew linearly in time for at least 15 min. This spreading rate increased with substrate hydrophobicity (ranging from 0.02 to 0.16 nm(2)/molecule/s for albumin and from 0.04 to 0.26 nm(2)/molecule/s for fibrinogen), resulting in a larger extent of footprint growth and a lower ultimate coverage on **hydrophobic surfaces** when compared with hydrophilic **surfaces** at the same adsorption conditions. Competitive adsorption studies were in qualitative agreement with the single-component experiments but were able to probe longer spreading time scales. Although spreading appeared to occur initially at a constant rate in the competitive experiments, after 2 h the spreading rate had slowed dramatically and the spreading process had begun to level off.

L16 ANSWER 7 OF 53 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2001540572 MEDLINE
DOCUMENT NUMBER: 21470669 PubMed ID: 11587038
TITLE: Plasma lithography--thin-film patterning of polymers by RF plasma polymerization II: Study of differential binding using adsorption probes.
AUTHOR: Goessl A; Golledge S L; Hoffman A S
CORPORATE SOURCE: Department of Bioengineering. University of Washington, Seattle 98195, USA.
CONTRACT NUMBER: RR01296 (NCRR)
SOURCE: JOURNAL OF BIOMATERIALS SCIENCE, POLYMER EDITION, (2001) 12 (7) 739-53.
Journal code: 9007393. ISSN: 0920-5063.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200205
ENTRY DATE: Entered STN: 20011008
Last Updated on STN: 20020528
Entered Medline: 20020522

AB In this study we present methods to physico-chemically modify micropatterned **cell** culture substrates that were manufactured using plasma lithography to incorporate affinity structures for specific **cell** binding. The surfaces consist of a pattern of a fluorocarbon plasma polymer with feature sizes between 5 and 100 microm on a background of a non-fouling tetraglyme (tetraethylene glycol dimethyl ether) plasma **polymer**. The tetraglyme **polymer blocks** virtually all non-specific binding of **proteins**, and it is non-**adhesive** for a fluorocarbon-polyethylene glycol (FC-PEG) **surfactant** designed to act as a '**hydrophobic** anchor' for **peptides**. The **surfactant** shows a strong affinity for the fluorocarbon polymer pattern, thus enabling us to form a pattern of the surfactant-conjugated **peptide**. To verify this, we have synthesized a conjugate between histamine

(as a model for a more complex **peptide**) and a commercially available FC-PEG surfactant. Disuccinimidyl carbonate was used to activate the terminal -OH group of the polyethylene glycol headgroup for the reaction with the amine-containing molecule. Affinity pattern formation can easily be achieved by immersion of the patterned substrates in a solution of the **peptide** -surfactant conjugate. Time of flight secondary ion mass spectroscopy in the imaging mode was used to verify that the surfactant localizes on the pattern, while the background remains bare. A model **protein**, bovine serum albumin, showed the same behavior. This suggests that these surfaces can be used for the formation of patterns of **cell-adhesive proteins**. These substrates will be used to investigate the influence of the **cell** size and shape of vascular smooth muscle **cells** on their physiology.

L16 ANSWER 8 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2000-205415 [18] WPIDS
CROSS REFERENCE: 2000-205580 [17]; 2000-205581 [17]; 2000-223821 [16]; 2000-223968 [17]
DOC. NO. NON-CPI: N2000-152880
DOC. NO. CPI: C2000-063261
TITLE: Bioadhesive compositions for medical skin electrodes comprises a polymeric matrix and a hydrophobic polymer whose concentration is greater at the surface than in the bulk of the matrix.
DERWENT CLASS: A96 D22 G03 P31 P32 P34 S05
INVENTOR(S): MUNRO, H S; YASIN, M
PATENT ASSIGNEE(S): (FIRS-N) FIRST WATER LTD; (PROC) PROCTER & GAMBLE CO
COUNTRY COUNT: 87
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000006215	A1	20000210	(200018)*	EN	44
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
AU 9951809	A	20000221	(200029)		
EP 1100557	A1	20010523	(200130)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
CN 1315875	A	20011003	(200205)		
KR 2001072157	A	20010731	(200208)		
KR 2001072163	A	20010731	(200208)		
US 2002034492	A1	20020321	(200224)		
US 2002035320	A1	20020321	(200224)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000006215	A1	WO 1999-GB2516	19990730
AU 9951809	A	AU 1999-51809	19990730

EP 1100557	A1		EP 1999-936835	19990730
			WO 1999-GB2516	19990730
CN 1315875	A		CN 1999-810263	19990730
KR 2001072157	A		KR 2001-701354	20010131
KR 2001072163	A		KR 2001-701362	20010131
US 2002034492	A1	Cont of	WO 1999-GB2516	19990730
			US 2001-771004	20010126
US 2002035320	A1	Cont of	WO 1999-GB2516	19990730
			US 2001-771018	20010126

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9951809	A	Based on	WO 200006215
EP 1100557	A1	Based on	WO 200006215

PRIORITY APPLN. INFO: GB 1999-9348 19990423; GB 1998-16826 19980731; GB 1999-6700 19990324

AN 2000-205415 [18] WPIDS

CR 2000-205580 [17]; 2000-205581 [17]; 2000-223821 [16]; 2000-223968 [17]

AB WO 200006215 A UPAB: 20020416

NOVELTY - Bioadhesive composition comprises an aqueous plasticized three dimensional polymeric matrix and a hydrophobic polymer. The concentration of the polymer at the surface of the matrix is greater than its concentration in the bulk of the matrix.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for (A) a pair of biomedical electrodes comprising the invented bioadhesive composition; (B) a fixation product for attaching a biomedical device to skin; and (C) a wound dressing comprising a carrier material in association with the invented bioadhesive composition.

USE - The bioadhesive composition is used in medical skin electrodes, in wound dressings, or in fixation products. The composition is also useful in a variety of consumer care applications particularly as **adhesive** for fecal management device or prosthesis, e.g., hair prosthesis.

ADVANTAGE - The invented bioadhesive composition possesses enhanced **adhesive** properties which are readily varied to suit different uses and, in the case of medical electrodes or similar devices, different configurations or applications. The composition also possesses superior electrical characteristics as compared to bioadhesive hydrogels. The incorporation of the hydrophobic polymer in the composition enables the **hydrophobic** component to segregate to the **surface**. The skin electrode produced using the composition maintains good electrical contact with the skin and is free of localized current hot spots, i.e. exhibits uniform conductivity.

Dwg.0/5

L16 ANSWER 9 OF 53 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 2000-282003 [24] WPIDS

DOC. NO. NON-CPI: N2000-212181

DOC. NO. CPI: C2000-085012

TITLE: **Adhesive** composition for, e.g. disposable nonwoven products comprises specified amount of copolymer in which the repeating units has

specified structure and the ratio of soluble versus insoluble units.

DERWENT CLASS: A13 A14 A28 A81 D22 E19 F07 G03 P73
INVENTOR(S): WANG, B
PATENT ASSIGNEE(S): (ATOF-N) ATO FINDLEY INC
COUNTRY COUNT: 91
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 6034168	A	20000307	(200024)*		8
WO 2000024841	A1	20000504	(200030)	EN	
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW				
AU 2000011249	A	20000515	(200039)		
BR 9914464	A	20010703	(200141)		
EP 1141162	A1	20011010	(200167)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
CN 1324391	A	20011128	(200219)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6034168	A	US 1998-178039	19981023
WO 2000024841	A1	WO 1999-US24465	19991020
AU 2000011249	A	AU 2000-11249	19991020
BR 9914464	A	BR 1999-14464	19991020
		WO 1999-US24465	19991020
EP 1141162	A1	EP 1999-955058	19991020
		WO 1999-US24465	19991020
CN 1324391	A	CN 1999-812450	19991020

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2000011249	A	Based on	WO 200024841
BR 9914464	A	Based on	WO 200024841
EP 1141162	A1	Based on	WO 200024841

PRIORITY APPLN. INFO: US 1998-178039 19981023
AN 2000-282003 [24] WPIDS
AB US 6034168 A UPAB: 20000522
NOVELTY - An **adhesive** composition comprises:
(a) 10-80 weight % (wt.%) of N-substituted alkaleneimine **copolymer**, preferably a **block** or a random **copolymer** (I);
(b) 0-70 wt.% tackifying resin; and
(c) 10-70 wt.% plasticizer.
DETAILED DESCRIPTION - An **adhesive** composition comprises:
(1) 10-80 weight % (wt.%) of N-substituted alkaleneimine

copolymer, preferably a **block** or a random **copolymer** of formula (I);

(2) 0-70 wt.% tackifying resin; and

(3) 10-70 wt.% plasticizer.

p and q = 2-6;

m, n = 20-10,000;

R1 = radical that renders the repeating unit to which it is joined substantially water soluble;

R2 = radical that renders the repeating unit to which it is joined substantially water insoluble

An INDEPENDENT CLAIM is also included for a repulpable and water responsive pressure sensitive **adhesive** sheet comprising a cellulosic material and the **adhesive** composition.

USE - For use with articles such as disposable nonwoven products, e.g. disposable nappies, pantyshields, surgical drapes, hospital pads and adult incontinence briefs, paper products, tapes, labels, and packaging materials.

ADVANTAGE - The composition is heat stable, can form strong bonds and can be formulated to be pressure sensitive. Also, the composition is water-sensitive thus allowing the disposable article to be easily disassembled and subsequently recycled.

Dwg.0/0

L16 ANSWER 10 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 2000:644033 SCISEARCH
THE GENUINE ARTICLE: 345RL
TITLE: Interactions of **poly(ethylene oxide)** brushes with chemically selective surfaces
AUTHOR: Sheth S R; Efremova N; Leckband D E (Reprint)
CORPORATE SOURCE: UNIV ILLINOIS, DEPT CHEM ENGN, URBANA, IL 61801 (Reprint); UNIV ILLINOIS, DEPT CHEM ENGN, URBANA, IL 61801
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF PHYSICAL CHEMISTRY B, (17 AUG 2000) Vol. 104, No. 32, pp. 7652-7662.
Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.
ISSN: 1089-5647.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS
LANGUAGE: English
REFERENCE COUNT: 81

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Poly(ethylene glycol) (PEG) has long been recognized for its unusual ability to resist **protein** adsorption. This is attributed to the repulsion of **proteins** by the polymer segments. Despite its successes, there are several reports that PEG does weakly bind **proteins**. This work tests the hypothesis that the PEG can bind to nonpolar, hydrophobic groups such as the aliphatic side chains of **amino** acids. To do this we measured the force-distance profiles between PEG(5000) brushes and self-assembled alkanethiol monolayers with varying amounts of nonpolar methyl-terminal groups. The polymer **adhesion** to these chemically selective surfaces increased with increasing density of surface methyl groups. The equilibrium thickness of the polymer chains in contact with the alkanethiol monolayer decreased

correspondingly. The brush did not adhere to **lipid** bilayers or to bare mica. The results show that PEG will adsorb to nonpolar, **hydrophobic surfaces**. These findings may provide a possible explanation for previous direct force measurements of **protein**-PEG **adhesion**, and reports of PEG complexation with partially folded **proteins**

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L16 ANSWER 11 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 2000:262867 SCISEARCH
THE GENUINE ARTICLE: 298QN
TITLE: Surfactant polymers designed to suppress bacterial (Staphylococcus epidermidis) **adhesion** on biomaterials
AUTHOR: Vacheethasanee K; Marchant R E (Reprint)
CORPORATE SOURCE: CASE WESTERN RESERVE UNIV, DEPT MACROMOL SCI, 10900 EUCLID AVE, WICKENDEN BLDG, CLEVELAND, OH 44106 (Reprint); CASE WESTERN RESERVE UNIV, DEPT MACROMOL SCI, CLEVELAND, OH 44106; CASE WESTERN RESERVE UNIV, DEPT BIOMED ENGN, CLEVELAND, OH 44106
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, (5 JUN 2000) Vol. 50, No. 3, pp. 302-312.
Publisher: JOHN WILEY & SONS INC, 605 THIRD AVE, NEW YORK, NY 10158-0012.
ISSN: 0021-9304.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 35

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB We describe a series of surfactant polymers designed as surface-modifying agents for the suppression of bacterial **adhesion** on biomaterials. The surfactant polymers consist of a poly(vinyl amine) backbone with hydrophilic **poly**(**ethylene oxide**) (**PEO**) and hydrophobic hexanal (Hex) side chains (PVAm/**PEO**:Hex). Surface modification is accomplished by simple dip coating from aqueous solution, from which surfactant polymers undergo spontaneous **surface**-induced assembly on **hydrophobic** biomaterials. The stability of PVAm/**PEO**:Hex on pyrolytic graphite (HOPG) and polyethylene (PE) was demonstrated by the absence of detectable desorption under flow conditions of pure water over a 24-h period. **PEO** surfactant polymers with four different **PEO**:Hex ratios (1:1.4, 1:2.5, 1:4.6, and 1:10.7) and a dextran surfactant polymer were compared with respect to S. epidermidis **adhesion** under dynamic flow conditions. Suppression of S. epidermidis **adhesion** was achieved for all modified surfaces over the shear range 0-15 dyn/cm(2). The effectiveness depended on the surfactant polymer composition such that S. epidermidis **adhesion** to modified surfaces decreased significantly with increasing **PEO** packing density. Modified HOPG was more effective in reducing bacterial **adhesion** compared with the corresponding modification on PE, which we attribute to the presence of defects in surfactant polymer assembly on PE. Our results are discussed from the perspective of critical factors, such as optimal **PEO** packing density and hydration thickness, that contribute to the effectiveness of

surfactant polymers to shield a biomaterial from **adhesive** bacterial interactions. (C) 2000 John Wiley & Sons, Inc.

L16 ANSWER 12 OF 53 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2000446816 MEDLINE
DOCUMENT NUMBER: 20452017 PubMed ID: 10999388
TITLE: Fibronectin immobilized by a novel surface treatment regulates fibroblast attachment and spreading.
AUTHOR: Webb K; Caldwell K; Tresco P A
CORPORATE SOURCE: W. M. Keck Center for Tissue Engineering, Department of Bioengineering, Salt Lake City, UT 84112, USA.
SOURCE: CRITICAL REVIEWS IN BIOMEDICAL ENGINEERING, (2000) 28 (1-2) 203-8.
Journal code: DSY. ISSN: 0278-940X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200102
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010208

AB In order to understand the influence of **cell-adhesive** molecules on anchorage-dependent **cell** behavior on biomaterial surfaces, a model system is required where these molecules can be applied to surfaces with controlled surface ligand density and resistance to the adsorption of additional **proteins** present in the medium. This study asked whether fibronectin could be immobilized in a controlled manner to a **hydrophobic surface** with a chemically modified triblock surfactant. ELISA studies indicated that variation of the soluble fibronectin concentration used for immobilization could be used to control the amount of fibronectin immobilized to the surface. Furthermore, fibroblasts seeded on these surfaces in 10% serum-containing medium attached and spread as a function of the amount of immobilized fibronectin. Surfaces treated with unmodified surfactant did not support **cell** attachment, suggesting that **cell** attachment and spreading were primarily regulated by the immobilized fibronectin with minimal interference from adsorption of serum **proteins**. Together, these results suggest that covalent immobilization to **Pluronic F108** provides a method for studying cellular responses to **cell adhesive proteins** with little interference from competing adsorbates, even in the presence of complex biological fluids such as serum. This technique may be applicable to a variety of existing hydrophobic biomedical polymers as a basic science tool as well as for influencing **cell** behavior at implant interfaces.

L16 ANSWER 13 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 2000:467205 SCISEARCH
THE GENUINE ARTICLE: 325HK
TITLE: Adsorption of plasma **proteins** on to **poly(ethylene oxide)/poly(propylene oxide) triblock copolymer** films: a focus on fibrinogen
AUTHOR: OConnor S M; DeAnglis A P; Gehrke S H; Retzinger G S

(Reprint)
CORPORATE SOURCE: UNIV CINCINNATI, DEPT PATHOL & LAB MED, CINCINNATI, OH 45267 (Reprint); UNIV CINCINNATI, DEPT PATHOL & LAB MED, CINCINNATI, OH 45267; UNIV CINCINNATI, DEPT CHEM ENGN, CINCINNATI, OH 45267
COUNTRY OF AUTHOR: USA
SOURCE: BIOTECHNOLOGY AND APPLIED BIOCHEMISTRY, (JUN 2000) Vol. 31, Part 3, pp. 185-196.
Publisher: PORTLAND PRESS, 59 PORTLAND PLACE, LONDON W1N 3AJ, ENGLAND.
ISSN: 0885-4513.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE; AGRI
LANGUAGE: English
REFERENCE COUNT: 51

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB **Triblock copolymers** of the form PEOalphaPPObetaPEOalpha [where **PEO** is **poly**(**ethylene oxide**) and **PPO** is **poly**(**propylene oxide**)] have many biomedical applications, many of which depend on the surface properties of the copolymers and the influence that those properties have on the adsorption of **proteins**. As a tool to help us better understand, predict and exploit the influence of these **triblock copolymers** on **protein** adsorption, we developed a model system in which well-defined monolayers of the copolymers are supported by solid, hydrophobic, microscopic beads. At the bead/water interface, the copolymers all form stable films in which the nominal molecular areas correspond to those of the molecules when they are packed rather tightly at the air/water interface. Beads coated with condensed films of copolymers that contain short **PEO** segments and elicit appreciable inflammation absorb appreciable quantities of plasma **proteins**, including fibrinogen, from aqueous solution. Beads coated with fibrinogen aggregate when they are stirred in the presence of thrombin, a consequence of interbead fibrin formation. Beads coated with condensed films of copolymers that contain long **PEO** segments and elicit little inflammation absorb little plasma **protein**, and they do not aggregate in the presence of thrombin. Our data and observations are consistent with the prevailing notion that the utility of **triblock copolymers** as agents for modifying the surface properties of blood-contacting surfaces derives from the influence of the copolymers on the adsorption of plasma **proteins**. In this regard, the ability of the copolymers to influence fibrinogen-mediated **adhesive** events may be particularly important. As to the mechanism of **protein** resistance, our data support the proposal that sibling **PEO** segments of copolymers in condensed films fold back across their parental **PPO** cores, limiting access of **proteins** to the hydrophobic cores themselves.

L16 ANSWER 14 OF 53 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 4

ACCESSION NUMBER: 2000037225 EMBASE
TITLE: Ligand accessibility as means to control **cell** response to bioactive bilayer membranes.
AUTHOR: Dori Y.; Bianco-Peled H.; Satija S.K.; Fields G.B.;

McCarthy J.B.; Tirrell M.
CORPORATE SOURCE: M. Tirrell, Dept. of Chem. Engineering/Materials, University of Minnesota, Minneapolis, MN 55455, United States. tirrell@engineering.ucsb.edu
SOURCE: Journal of Biomedical Materials Research, (2000) 50/1 (75-81).
Refs: 32
ISSN: 0021-9304 CODEN: JBMRBG
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB We report a new method to create a biofunctional surface in which the accessibility of a ligand is used as a means to influence the **cell** behavior. Supported bioactive bilayer membranes were created by Langmuir-Blodgett (LB) deposition of either a pure poly(ethylene glycol) (PEG) **lipid**, having PEG head groups of various lengths, or 50 mol % binary mixtures of a PEG **lipid** and a novel collagen-like **peptide** amphiphile on a **hydrophobic surface**. The **peptide** amphiphile contains a **peptide** synthetically lipidated by covalent linkage to hydrophobic dialkyl tails. The amphiphile head group lengths were determined using neutron reflectivity. **Cell adhesion** and spreading assays showed that the **cell** response to the membranes depends on the length difference between head groups of the membrane components. **Cells** adhere and spread on mixtures of the **peptide** amphiphile with the PEG **lipids** having PEG chains of 120 and 750 molecular weight (MW). In contrast, **cells** adhered but did not spread on the mixture containing the 2000 MW PEG. **Cells** did not adhere to any of the pure PEG **lipid** membranes or to the mixture containing the 5000 MW PEG. Selective masking of a ligand on a surface is one method of controlling the surface bioactivity.

L16 ANSWER 15 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2000-052807 [04] WPIDS
CROSS REFERENCE: 1999-060000 [05]; 1999-060030 [05]; 1999-060321 [05]; 1999-060322 [05]; 1999-060323 [05]; 2000-038644 [54]; 2000-038645 [54]; 2000-601270 [57]
DOC. NO. NON-CPI: N2000-041213
DOC. NO. CPI: C2000-013592
TITLE: Improved uncomplexed cyclodextrin composition for odor and wrinkle control in inanimate surfaces especially fabrics, curtains, drapes and carpets.
DERWENT CLASS: A26 A97 D22 D25 E19 F06 P34 P42
INVENTOR(S): BOLICH, R E; BURNS, A J; CAMPBELL, W T; CHUNG, A H; COBB, D S; MERMELSTEIN, R; PEFFLY, M M; ROSENBALM, E L; SCHNEIDERMAN, E; STREUTKER, A D; TORDIL, H B; TRINH, T; WARD, T E; WOLFF, A M; WOO, R A
PATENT ASSIGNEE(S): (PROC) PROCTER & GAMBLE CO
COUNTRY COUNT: 72
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG

WO 9955814 A1 19991104 (200004)* EN 84
RW: EA GH GM KE LS MW OA SD SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IN IS KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
ZA 9811265 A 20000126 (200011) 84
AU 9918046 A 19991116 (200015)
BR 9815835 A 20001226 (200103)
AU 740341 B 20011101 (200175)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9955814	A1	WO 1998-US25796	19981208
ZA 9811265	A	ZA 1998-11265	19981209
AU 9918046	A	AU 1999-18046	19981208
BR 9815835	A	BR 1998-15835	19981208
		WO 1998-US25796	19981208
AU 740341	B	AU 1999-18046	19981208

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9918046	A	Based on	WO 9955814
BR 9815835	A	Based on	WO 9955814
AU 740341	B	Previous Publ.	AU 9918046
		Based on	WO 9955814

PRIORITY APPLN. INFO: US 1998-67639 19980427; US 1998-67182 19980427; US 1998-67184 19980427; US 1998-67240 19980427; US 1998-67241 19980427; US 1998-67243 19980427; US 1998-67385 19980427; US 1998-67387 19980427

AN 2000-052807 [04] WPIDS

CR 1999-060000 [05]; 1999-060030 [05]; 1999-060321 [05]; 1999-060322 [05]; 1999-060323 [05]; 2000-038644 [54]; 2000-038645 [54]; 2000-601270 [57]

AB WO 9955814 A UPAB: 20020114
NOVELTY - A stable aqueous odor absorbing composition comprises a solubilized uncomplexed cyclodextrin, cyclodextrin compatible fabric wrinkle control agent and optionally a cyclodextrin compatible surfactant, an antimicrobial active and preservative, perfume ingredients, low molecular weight polyol, aminocarboxylate chelator, metallic salt, an **enzyme** and an aqueous carrier.

DETAILED DESCRIPTION - A stable, aqueous odor-absorbing composition comprises:

(A) a solubilized, uncomplexed cyclodextrin (A) to absorb malodors;

(B) optionally a cyclodextrin compatible surfactant (B) to improve the composition performance;

(C) optionally a cyclodextrin compatible and water soluble antimicrobial active (C) to kill or reduce the growth of microorganisms;

(D) optionally a hydrophilic perfume (D) containing 50 weight% (wt. %) or more of perfume ingredients having a ClogP of 3.5 or less

and a small amount of perfume ingredients selected from ambrox, bacdanol, benzyl salicylate, butyl anthranilate, cetalox, damascenone, alpha - damascone, gamma -dodecalactone, ebanol, herbavert, cis-3-hexenyl salicylate, alpha -ionone, beta -ionone, alpha -isomethylionone, lilial, methyl nonyl ketone, gamma -undecalactone, undecylenic aldehyde and their mixtures;

(E) optionally 0.01-3 wt. % of low molecular weight polyol (E);

(F) optionally 0.001-0.3 wt. % of aminocarboxylate chelator (F);

(G) optionally a metallic salt (G) to improve odor benefit;

(H) optionally an **enzyme** (H) to improve odor control benefit, optionally a solubilized water soluble;

(I) antimicrobial preservative (I);

(J) a cyclodextrin compatible fabric wrinkle control agent (J) optionally selected from cyclodextrin compatible shape retention polymer, cyclodextrin compatible plasticizers, cyclodextrin compatible lithium salts and their mixtures; and

(K) aqueous carrier (K).

The composition contains (B) and/or (C) and/or the composition is essentially free of any material that would soil or stain fabrics during usage and has a pH of 3.5 or more. The composition packed in a container is capable of dispensing small droplets having a weight average diameter of 10-120 mu m.

An INDEPENDENT CLAIM is also included for odor and wrinkle control method for fabrics, which involves spraying the cyclodextrin composition onto the surface using either a trigger spray device or a non manually operated sprayers such as powered sprayers, air aspirated sprayers, liquid aspirated sprayers, electrostatic sprayers or nebulizer sprayers, spraying droplets having a weight average diameter of 10-120 mu m.

USE - For inanimate surfaces especially fabrics and fibers such as cotton fabrics and fibers, clothes, curtain, drapes, upholstered furniture, carpeting, bed linens, bath linens, table cloths, sleeping bags, tents, car interiors etc. Also sprayed into major household appliances such as refrigerators, freezers, washing machines, automatic dryers, ovens, microwave ovens and dishwashers, cat litter, pet bedding and pet houses.

ADVANTAGE - The composition is stable, clear and aqueous and controls wrinkles and absorbs odor on fabrics. The composition controls odors caused by a broad spectrum of organic odoriferous materials of food odors, body odor, breath odor, urine, excretions and remains shelf stable for a substantial period of time. The odor absorbing compositions restore and/or maintain freshness of the fabric by reducing malodor without washing or dry cleaning. The composition minimizes the occurrence of fabric staining and improves fabric appearance by minimizing localized spottings. The composition spreads readily and uniformly on **hydrophobic surfaces** such as polyester and nylon. The composition dries faster allowing ready use of the treated material. The composition improves in-wear electrostatic control and antimicrobial performance. The composition releases the fiber from wrinkling in wet or damp fabric. The residual silicone in the composition reduces fabric rewrinkling after drying. The composition has **adhesive** and film forming properties. The composition promotes spreading of the solution and provides improved odor control and antimicrobial action. The composition applied in the form of very small particles, enhances the uniform distribution of the composition and improves the overall performance.

Dwg.0/0

L16 ANSWER 16 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2000-038644 [03] WPIDS
CROSS REFERENCE: 1999-060000 [05]; 1999-060030 [05]; 1999-060321 [05]; 1999-060322 [05]; 1999-060323 [05]; 2000-038645 [54]; 2000-052807 [54]; 2000-601270 [57]
DOC. NO. NON-CPI: N2000-029166
DOC. NO. CPI: C2000-009867
TITLE: Odor control composition for inanimate surfaces such as fabric, curtains, drapes, carpets, bed linens, table clothes, tent, car interior, household upholsteries.
DERWENT CLASS: A25 A26 A97 D22 D25 E19 F06 P34 P42
INVENTOR(S): CHUNG, A H; COBB, D S; REECE, S; ROSENBALM, E L; SCHNEIDERMAN, E; TRINH, T; WARD, T E; WOLFF, A M; WOO, R A
PATENT ASSIGNEE(S): (PROC) PROCTER & GAMBLE CO
COUNTRY COUNT: 72
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9955813	A1	19991104	(200003)*	EN	68
RW: EA GH GM KE LS MW OA SD SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IN IS KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
ZA 9811266	A	20000126	(200011)		64
AU 9917110	A	19991116	(200015)		
BR 9815836	A	20001226	(200103)		
AU 742640	B	20020110	(200217)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9955813	A1	WO 1998-US25795	19981208
ZA 9811266	A	ZA 1998-11266	19981209
AU 9917110	A	AU 1999-17110	19981208
BR 9815836	A	BR 1998-15836	19981208
		WO 1998-US25795	19981208
AU 742640	B	AU 1999-17110	19981208

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9917110	A	Based on	WO 9955813
BR 9815836	A	Based on	WO 9955813
AU 742640	B	Previous Publ.	AU 9917110
		Based on	WO 9955813

PRIORITY APPLN. INFO: US 1998-67639 19980427; US 1998-67184 19980427; US 1998-67243 19980427; US 1998-67387 19980427

Searcher : Shears 308-4994

AN 2000-038644 [03] WPIDS
CR 1999-060000 [05]; 1999-060030 [05]; 1999-060321 [05]; 1999-060322 [05]; 1999-060323 [05]; 2000-038645 [54]; 2000-052807 [54]; 2000-601270 [57]
AB WO 9955813 A UPAB: 20020313
NOVELTY - The composition has pH of 3.5 or more and contains uncomplexed cyclodextrin and optionally a surfactant, active anti-microbial agent, hydrophilic perfume ingredients, 0.01-3 weight percent low molecular weight polyol, 0.001-0.3 wt. % of **amino** carboxylate chelator, metallic salt, antimicrobial preservative and an aqueous carrier.

DETAILED DESCRIPTION - The composition contains solubilized, uncomplexed cyclodextrin to absorb malodors, optionally a cyclodextrin compatible surfactant to improve the composition performance, optionally a cyclodextrin compatible and water soluble antimicrobial agent to kill or reduce the growth of microorganisms, optionally a hydrophilic perfume containing 50 weight% (wt. %) or more of perfume ingredients having a ClogP of 3.5 or less and a small amount of perfume ingredients selected from ambrox, bacdanol, benzyl salicylate, butyl anthranilate, cetalox, damascenone, alpha -damascone, gamma -dodecalactone, ebanol, herbavert, cis-3-hexenyl salicylate, alpha -ionone, beta -ionone, alpha - isomethylionone, lilial, methyl nonyl ketone, gamma -undecalactone, undecylenic aldehyde and their mixtures, optionally 0.01-3 wt. % of low molecular weight polyol, optionally 0.001-0.3 wt. % of aminocarboxylate chelator, optionally a metallic salt to improve odor, optionally a solubilized water soluble antimicrobial preservative and an aqueous carrier. The composition is essentially free of any material that soils or stains fabric during usage and has a pH of 3.5 or more. The composition packed in a container, is capable of dispensing small droplets having a weight average diameter of 10-120 mu m.

An INDEPENDENT CLAIM is also included for odor control on fabric which involves spraying the cyclodextrin composition onto the surface using a trigger spray device, spraying droplets having a weight average diameter of 10-120 mu m.

USE - For inanimate surfaces especially fabrics, clothes, curtain, drapes, upholstered furniture, carpeting, bedlinens, bathlinens, table cloths, sleeping bags, tents, car interiors etc. Also sprayed on household surfaces such as countertops, cabinets, walls, floors, bathroom, kitchen surfaces and into major household appliances such as refrigerators, freezers, washing machine, automatic dryers, ovens, microwave ovens and dishwashers, cat litter, pet bedding and pet houses.

ADVANTAGE - The composition is stable, clear and aqueous and controls wrinkles and absorbs odor on fabrics. The composition controls odors caused by a broad spectrum of organic odoriferous materials of food odors, body odor, breath odor, urine, excretions and remains shelf stable for the substantial period of time. The odor absorbing compositions restored and/or maintain freshness by reducing malodor without washing or dry cleaning. The composition minimizes the occurrence of fabric staining and improves fabric appearance by minimizing localized spottings. The composition spread readily and uniformly on **hydrophobic surfaces** such as polyester and nylon. The composition dries faster allowing ready use of the treated material and improves in-wear electrostatic control and antimicrobial performance. The composition release the fiber from wrinkling in wet or damp fabric.

The composition has **adhesive** and film forming properties when specified amount of the composition is used. The composition promotes uniform spreading of the solution and provides improved odor control and antimicrobial action.
Dwg.0/0

L16 ANSWER 17 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1999-446718 [38] WPIDS
DOC. NO. CPI: C1999-131703
TITLE: Biocompatible, biodegradable surface-active polymers useful for preparing micellar systems or emulsions, stabilizing nanoparticles, encapsulating active substances and surface-treating biomaterials.
DERWENT CLASS: A14 A23 A25 A96 B04 B07 D22
INVENTOR(S): BRETON, P; BRU, M N; COUVREUR, P; LARRAS, V; RIESS, G; ROQUES, C C; BRU-MAGNIEZ, N; ROQUES-CARMES, C
PATENT ASSIGNEE(S): (VIRS-N) VIRSOL
COUNTRY COUNT: 86
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
FR 2774096	A1	19990730	(199938)*		19
WO 9938898	A1	19990805	(199938)	FR	
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW					
ZA 9900721	A	19991027	(199951)		35
AU 9921688	A	19990816	(200002)		
NO 2000003873	A	20000728	(200056)		
EP 1051436	A1	20001115	(200059)	FR	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
BR 9908537	A	20001128	(200067)		
CZ 2000002747	A3	20010117	(200107)		
SK 2000001104	A3	20010409	(200131)		
CN 1289347	A	20010328	(200140)		
HU 2001000238	A2	20010628	(200143)		
KR 2001040476	A	20010515	(200167)		
JP 2002501953	W	20020122	(200211)		34
AU 744995	B	20020307	(200229)		
MX 2000007260	A1	20010601	(200235)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
FR 2774096	A1	FR 1998-1001	19980129
WO 9938898	A1	WO 1999-FR185	19990129
ZA 9900721	A	ZA 1999-721	19990129
AU 9921688	A	AU 1999-21688	19990129
NO 2000003873	A	WO 1999-FR185	19990129
		NO 2000-3873	20000728
EP 1051436	A1	EP 1999-901660	19990129

		WO 1999-FR185	19990129
BR 9908537	A	BR 1999-8537	19990129
		WO 1999-FR185	19990129
CZ 2000002747	A3	WO 1999-FR185	19990129
		CZ 2000-2747	19990129
SK 2000001104	A3	WO 1999-FR185	19990129
		SK 2000-1104	19990129
CN 1289347	A	CN 1999-802494	19990129
HU 2001000238	A2	WO 1999-FR185	19990129
		HU 2001-238	19990129
KR 2001040476	A	KR 2000-708331	20000729
JP 2002501953	W	WO 1999-FR185	19990129
		JP 2000-529363	19990129
AU 744995	B	AU 1999-21688	19990129
MX 2000007260	A1	MX 2000-7260	20000725

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9921688	A	Based on	WO 9938898
EP 1051436	A1	Based on	WO 9938898
BR 9908537	A	Based on	WO 9938898
CZ 2000002747	A3	Based on	WO 9938898
SK 2000001104	A3	Based on	WO 9938898
HU 2001000238	A2	Based on	WO 9938898
JP 2002501953	W	Based on	WO 9938898
AU 744995	B	Previous Publ.	AU 9921688
		Based on	WO 9938898

PRIORITY APPLN. INFO: FR 1998-1001 19980129
AN 1999-446718 [38] WPIDS
AB FR 2774096 A UPAB: 19990922
NOVELTY - New family of biocompatible surface-active copolymers that biodegrade by an erosion mechanism that does not change the degree of polymerization.

DETAILED DESCRIPTION - Biocompatible surface-active polymers comprise at least one hydrophilic chain and at least one hydrophobic chain which is formed by a homopolymer consisting of repeat units of formula (I), a statistical copolymer comprising different units of formula (I) or a statistical copolymer comprising mostly units of formula (I).

R1 = 1-6C alkyl or (CH2)mCOOR3;

R2, R3 = 1-6C alkyl;

m, n = 1-5.

USE - The surface-active polymers are useful for preparing micellar systems or emulsions, for preparing or stabilizing nanoparticles, for encapsulating active substances, and for surface treatment of materials or biomaterials, to render them hydrophilic surface or to minimize interfacial **adhesion** to animal tissues, **cells** or **biomolecules** (all claimed), especially where the active substances are therapeutic agents, the nanoparticles are contrast agents and the (bio)materials are implants.

ADVANTAGE - The copolymers are susceptible to chemical or biochemical degradation by cleavage of the side-chain substituents which constitute the **hydrophobic** component, transforming the copolymer with **surfactant** properties to one that is

hydrophilic and which has the same degree of polymerization as the starting polymer.
Dwg.0/0

L16 ANSWER 18 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 2000:15694 SCISEARCH
THE GENUINE ARTICLE: 268TT
TITLE: Adsorption and relaxation kinetics of albumin and fibrinogen on **hydrophobic surfaces** : Single-species and competitive behavior
AUTHOR: Wertz C F; Santore M M (Reprint)
CORPORATE SOURCE: LEHIGH UNIV, DEPT CHEM ENGN, BETHLEHEM, PA 18015 (Reprint); LEHIGH UNIV, DEPT CHEM ENGN, BETHLEHEM, PA 18015
COUNTRY OF AUTHOR: USA
SOURCE: LANGMUIR, (21 DEC 1999) Vol. 15, No. 26, pp. 8884-8894.
Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.
ISSN: 0743-7463.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS
LANGUAGE: English
REFERENCE COUNT: 61

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB We report the kinetic behavior of albumin and fibrinogen adsorption and relaxation from gentle shearing flow and phosphate buffer onto C16 self-assembled monolayers. The adsorption kinetics were generally transport-limited; however, the ultimate coverages depended on the rates at which **protein** molecules arrived at the surface, suggesting that interfacial relaxations determined the ultimate coverage. Of particular note was a dependence of the ultimate coverage of both **proteins** on the wall shear rate, in addition to the influence of the bulk solution concentration. Analysis of single **protein** experiments revealed interfacial **protein** relaxation rates of 0.12 and 0.15 nm(2) molecule(-1) s(-1) for albumin and fibrinogen, respectively. These rates were constant over the range of experimental conditions and represent the initial relaxation rates after **protein** **adhesion** to the surface. The initial **protein** footprints were consistent with the free solution **protein** dimensions and, in the case of albumin, grew over a factor of 5 as the **protein** relaxed. For fibrinogen, relaxations were less extensive, increasing the footprint by a factor of 3. The extents of relaxation and the sizes of the **protein** footprints during the Linear regime of spreading suggest that interfacial denaturing contributes significantly to the relaxation process, in addition to simple reorientations. The albumin relaxation behavior was shown, in addition to its influence on albumin coverage, to affect the coverage of fibrinogen in competitive situations. When the C16 layer was passivated with albumin prior to fibrinogen adsorption, short albumin exposures (still sufficient to cover the C16 surface) were ineffective at preventing fibrinogen adsorption. Prolonged incubation of albumin layers in albumin solution or buffer dramatically reduced subsequent fibrinogen **adhesion**.

L16 ANSWER 19 OF 53 JICST-EPlus COPYRIGHT 2002 JST
ACCESSION NUMBER: 990809742 JICST-EPlus

TITLE: Ultrastructural Evaluation of Lymphocytes Adhered to Hydrophilic/**Hydrophobic**-Type **Block Copolymer Surfaces** with Different Lamella-Shaped Microdomain Spacings.
AUTHOR: ABE KAZUHIKO; SUGAWARA MOTOAKI; HORIE TOSHINOBU; KASANUKI HIROSHI
ITO ETSUKO; OKANO MITSUO; SAKURAI YASUHISA
CORPORATE SOURCE: Tokyo Women's Medical College, Heart Inst. of Japan
Inst. of Biomed. Eng., Tokyo Women's Med. Coll.
SOURCE: Kobunshi Gakkai Yokoshu (Polymer Preprints, Japan), (1999) vol. 48, no. 3, pp. 574. Journal Code: Z0703B
PUB. COUNTRY: Japan
DOCUMENT TYPE: Conference; Short Communication
LANGUAGE: Japanese
STATUS: New

L16 ANSWER 20 OF 53 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 1999253631 MEDLINE
DOCUMENT NUMBER: 99253631 PubMed ID: 10321714
TITLE: Fibronectin-**pluronic** coadsorption on a polystyrene **surface** with increasing **hydrophobicity**: relationship to **cell adhesion**.
AUTHOR: Detrait E; Lhoest J B; Bertrand P; van den Bosch de Aguilar P
CORPORATE SOURCE: Unite de Biologie Animale (BANI), Universite Catholique de Louvain, Louvain-la Neuve, Belgium.
SOURCE: JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, (1999 Jun 15) 45 (4) 404-13.
Journal code: HJJ; 0112726. ISSN: 0021-9304.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199907
ENTRY DATE: Entered STN: 19990727
Last Updated on STN: 19990727
Entered Medline: 19990715

AB Recently, patterned polystyrene **surfaces** containing **hydrophobic** (PS) and more hydrophilic (PSox) areas have been shown to be capable of directing cellular growth, which is mainly due to the competitive adsorption of **adhesive** and antiadhesive molecules. In this article, the competitive adsorption between a **pluronic** surfactant and fibronectin was studied on homogeneous PS or PSox substrates conditioned with mixtures containing increasing concentrations of one of the two molecules. Radiolabeling and X-ray photoelectron spectroscopy techniques showed that fibronectin adsorption increased on both surfaces if the fibronectin concentrations increased in the conditioning mixture. In contrast, fibronectin adsorption decreased on PSox and did not occur on PS surfaces when **pluronic** concentrations increased in the coating mixture. A comparison of these data with pheochromocytoma and Schwann **cells** cultured on patterned surfaces showed that the direction of **cell** growth on PSox areas depended first on the relative concentrations of the two components in the mixtures, and second, on their ratio; the best concentration ratio probably depends on the **cell**'s ability to recondition its support.

L16 ANSWER 21 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1999:675569 SCISEARCH
THE GENUINE ARTICLE: 230UM
TITLE: Polymer coatings for improved **protein** crystal growth
AUTHOR: VanAlstine J M (Reprint); Malmsten M; Long M M; Johnson V K; DeLucas L J
CORPORATE SOURCE: ROYAL INST TECHNOL, KET TS, DEPT CHEM ENGN & TECHNOL, SE-10044 STOCKHOLM, SWEDEN; UNIV ALABAMA, DEPT CHEM, HUNTSVILLE, AL 35899; INST SURFACE CHEM, SE-11486 STOCKHOLM, SWEDEN; UNIV ALABAMA, CTR MACROMOL CRYSTALLOG, BIRMINGHAM, AL 35294
COUNTRY OF AUTHOR: SWEDEN; USA
SOURCE: COLLOIDS AND SURFACES B-BIOINTERFACES, (15 AUG 1999) Vol. 14, No. 1-4, pp. 197-211.
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 0927-7765.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 89

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The ability to grow quality **protein** crystals is necessary to analyze **protein** structure by X-ray diffraction and related techniques. As such it plays a key role in enzymology, structure-based drug design, molecular biology, and other biomedical areas. It is also required for macromolecule purification by crystallization. **Protein** crystal growth (PCG) may be negatively influenced by various factors related to nonspecific adsorption and adherence at growth chamber surfaces. Such factors include nucleation and growth of flawed crystals at chamber walls, or wall growth blockage of optical monitoring paths. Surface localized poly(ethylene glycol) (PEG) and other neutral, hydrophilic polymers are known to significantly reduce nonspecific adsorption of biological macromolecules and particles. Preliminary studies, involving various PCG methods (temperature induction, vapor diffusion), apparatii (test tubes, cuvettes, and specialized PCG hardware), growth chamber materials (glass, polystyrene, polysulfone), chamber volumes (0.1-10 mi) and **protein** samples (lysozyme, thaumatin, insulin) indicate the potential of PEG coatings to significantly reduce problems related to adsorption in PCG. The results, which match the ability of such coatings to reduce **protein** adsorption as evaluated by both ellipsometry and **enzyme** linked immunoassay, are discussed in relation to colloidal stabilization theory and properties of PEG coated surfaces. (C) 1999 Elsevier Science B.V. All rights reserved.

L16 ANSWER 22 OF 53 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 6
ACCESSION NUMBER: 1999108669 EMBASE
TITLE: Biofouling potentials of microporous polysulfone membranes containing a sulfonated polyether-ethersulfone/polyethersulfone **block copolymer**: Correlation of membrane surface properties with bacterial attachment.
AUTHOR: Knoell T.; Safarik J.; Cormack T.; Riley R.; Lin S.W.; Ridgway H.

CORPORATE SOURCE: H. Ridgway, Biotechnology Research Department, Orange County Water District, 10500 Ellis Avenue, Fountain Valley, CA 92728-8300, United States
SOURCE: Journal of Membrane Science, (1999) 157/1 (117-138). Refs: 21
ISSN: 0376-7388 CODEN: JMESDO
PUBLISHER IDENT.: S 0376-7388(98)00365-2
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
004 Microbiology
046 Environmental Health and Pollution Control
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Multivariate methods were used to identify relationships between bacterial attachment (biofouling potential), water transport, and the surface properties of nine modified polysulfone (MPS) membranes comprising blends of polysulfone (PS) with a sulfonated polyether-ethersulfone/polyethersulfone **block copolymer**. The topology of the microporous MPS membranes, including surface roughness, surface height, pore size and pore geometry were determined by atomic force microscopy (AFM) and digital image analysis. Other measurements included relative **surface hydrophobicity** by captive bubble contact angle, **surface** charge (i.e., degree of sulfonation) by uranyl cation binding, wt% solids, porosity, membrane thickness, water flux, and the affinity of membranes for a hydrophilic Flavobacterium and hydrophobic Mycobacterium species. The mycobacteria attached best to the MPS membranes, but the attachment of both organisms was inversely correlated with the mean aspect ratio of pores, suggesting that irregular or elliptic pores discouraged attachment. Multivariate regression analyses identified the pore mean aspect ratio, mean surface height, PS content, and the n-methylpyrrolidone+propionic acid (NMP-PA) solvent concentration as influential factors in Mycobacterium attachment, whereas membrane thickness, surface roughness, pore mean aspect ratio, porosity, and the mean pore area/image area ratio influenced Flavobacterium attachment. Cluster analyses revealed that Mycobacterium attachment was associated with hydrophobic determinants of the MPS membranes, including PS content, wt% solids, and air bubble contact angle. In contrast, Flavobacterium attachment was primarily associated with membrane thickness and charge (i.e., uranyl cation binding or degree of sulfonation). Membrane flux was inversely correlated with **surface hydrophobicity** and PS content, but (in contrast to **cell** attachment) positively correlated with most pore geometry parameters including the mean aspect ratio, suggesting that pore geometry can be optimized to minimize **cell** attachment and maximize water transport. Other variables influencing water flux included the NMP-PA solvent concentration and membrane roughness. The results should facilitate the design of novel microporous PS membranes having reduced biofouling potentials and greater water fluxes. Copyright (C) 1999 Elsevier Science B.V.

L16 ANSWER 23 OF 53 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 1999008646 MEDLINE
DOCUMENT NUMBER: 99008646 PubMed ID: 9794515

TITLE: **Adhesion** of mammalian **cells** to polymer surfaces: from physical chemistry of surfaces to selective **adhesion** on defined patterns.
AUTHOR: Dewez J L; Lhoest J B; Detrait E; Berger V; Dupont-Gillain C C; Vincent L M; Schneider Y J; Bertrand P; Rouxhet P G
CORPORATE SOURCE: Biomaterials Programme, Universite Catholique de Louvain, Louvain-La-Neuve, Belgium.
SOURCE: BIOMATERIALS, (1998 Aug) 19 (16) 1441-5. Ref: 17
Journal code: A4P; 8100316. ISSN: 0142-9612.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981230

AB The study of the adsorption of type I collagen from a solution containing **Pluronic** F68 has shown that the latter prevents collagen adsorption on polystyrene and does not prevent it on surface-oxidized polystyrene. This explains the control of mammalian **cell adhesion** by substrate **surface hydrophobicity** and composition of pre-conditioning solution. On that basis, selective **adhesion** of different types of mammalian **cells** (PC12 pheochromocytoma, MSC80 schwannoma, Hep G2 hepatoblastoma, rat hepatocytes) on patterned surfaces was achieved. Therefore tracks (width in the range of a few tens of microm) of reduced hydrophobicity were produced on polystyrene by photolithography and oxygen plasma treatment. After conditioning by a solution containing both **Pluronic** F68 and extracellular matrix **protein** (collagen, fibronectin), the latter adsorbed selectively on these paths thus allowing selective **adhesion** of the **cells**.

L16 ANSWER 24 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1999:28620 BIOSIS
DOCUMENT NUMBER: PREV199900028620
TITLE: Heterogeneous polymer surfaces used as biomaterials: **Protein** adsorption and **cell adhesion**.
AUTHOR(S): Marchal, T. G. (1); Verfaillie, G.; Legras, R.; Trouet, A. B.; Rouxhet, P. G. (1)
CORPORATE SOURCE: (1) Unite Chim. Interfaces, Place Croix du Sud 2/18, 1348 Louvain-la-Neuve Belgium
SOURCE: Mededelingen Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen Universiteit Gent, (1998) Vol. 63, No. 4A, pp. 1109-1116.
DOCUMENT TYPE: Article
LANGUAGE: English

AB **Protein** adsorption (collagen, fibronectin and laminin) and **cell adhesion** (fibroblasts and endothelial **cells**) on polypropylene, poly(ethylene terephthalate) and poly(methyl methacrylate), were examined in different media containing or not fetal calf serum and/or **Pluronic** F68 surfactant. The results confirm that inhibition of **cell**

adhesion on hydrophobic substrata is due to adsorption of substances competing with extracellular matrix **proteins** specifically recognized by the **cells**. However, they also show that substratum surface properties more subtle than overall wettability are important. PP/PET blends have been used to create **surfaces** with zones of contrasted **hydrophobicity** and, thereby, with patterned laminin distribution, the scale of heterogeneity being of subcellular size. **Adhesion** of fibroblasts on a surface consisting of 24% PET and thus characterized by 24% laminin surface coverage is similar to that on a pure PP surface.

L16 ANSWER 25 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1998:518217 SCISEARCH
THE GENUINE ARTICLE: ZX403
TITLE: Mechanistic aspects of blood-contacting properties of polypropylene surfaces - from the viewpoint of macromolecular entanglement and hydrophobic interaction via water molecules
AUTHOR: Kawamoto N; Mori H; Yui N; Terano M (Reprint)
CORPORATE SOURCE: JAPAN ADV INST SCI & TECHNOL, SCH MAT SCI, 1-1 ASAHIDAI, TATSUNOKUCHI, ISHIKAWA 92312, JAPAN (Reprint); JAPAN ADV INST SCI & TECHNOL, SCH MAT SCI, TATSUNOKUCHI, ISHIKAWA 92312, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: JOURNAL OF BIOMATERIALS SCIENCE-POLYMER EDITION, (MAY 1998) Vol. 9, No. 6, pp. 543-559. Publisher: VSP BV, PO BOX 346, 3700 AH ZEIST, NETHERLANDS. ISSN: 0920-5063.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 40
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Polypropylene surfaces with a particular crystalline-amorphous microstructure have been demonstrated to reduce **protein** adsorption and platelet activation. Such blood-contacting properties may be affected by the crystalline-amorphous microstructure of the surfaces, although wettability such as dynamic contact angles and surface free energy components were almost constant, being independent from the variation in the microstructure. In order to clarify the mechanistic aspects on their blood-contacting properties, the physicochemical properties of the surfaces were evaluated for a series of compression-molded polypropylene sheets in terms of the work of **adhesion** and the structure of sorbed water. The work of **adhesion** of the compression-molded sheets increased with decreasing surface layer crystallinity, presumably due to macromolecular entanglement with a polymeric glue used. The work of **adhesion** involving macromolecular entanglement may occur between **proteins** and the surfaces. Thus, a decrease in the surface layer crystallinity is considered to cause an increase in the **protein** adsorption. The structure of water sorbed into the sheets changed - it was more gaseous (isolated) at the surfaces with a higher crystallinity. This suggests that the hydrophobic interaction via water molecules increased with surface layer crystallinity, resulting in increasing **protein** adsorption and denaturation. Thus, it is considered

that both macromolecular entanglement and hydrophobic interaction are important on the mechanistic aspects of blood-contacting properties of polypropylene surfaces. In order to confirm this hypothesis, the evaluation of the physicochemical properties and blood-contacting properties was also performed on a series of uniaxially drawn polypropylene films. A decrease in the work of **adhesion** and the **hydrophobic** interaction at the **surfaces** was observed with increasing draw ratio, and the **protein** adsorption and platelet activation were effectively prevented with increasing draw ratio. This result supports our hypothesis. Therefore, it is concluded that the excellent blood-contacting properties of polypropylene surfaces can be achieved by reducing the macromolecular entanglement and the hydrophobic interaction with **proteins**.

L16 ANSWER 26 OF 53 JICST-EPlus COPYRIGHT 2002 JST
ACCESSION NUMBER: 980516887 JICST-EPlus
TITLE: Ultrastructural analysis of the inhibitory activity of PHEMA-PSt-PHEMA ABA type **block copolymer** surfaces, with microdomain spacing of 16nm on lymphocyte **cell** death.
AUTHOR: ABE KAZUHIKO; HORIE TOSHINOBU
KIKUCHI AKIHIKO; ITO ETSUKO; OKANO TERUO; SAKURAI YASUHISA
CORPORATE SOURCE: Tokyo Women's Medical College, Heart Inst. of Japan
Inst. of Biomed. Eng., Tokyo Women's Med. Coll.
SOURCE: Jinko Zoki, Nippon Jinko Zoki Gakkai (Japanese Journal of Artificial Organs), (1998) vol. 27, no. 2, pp. 495-502. Journal Code: Z0557B (Fig. 3, Tbl. 1, Ref. 25)
ISSN: 0300-0818
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
LANGUAGE: Japanese
STATUS: New
AB To evaluate an inhibitory activity of PHEMA-PSt-PHEMA ABA type **block copolymer** (HSB) surfaces with microdomain spacing of 16nm to rat lymphocyte **cell** death, ultrastructural changes of the lymphocytes adhered to the HSB surfaces for 3 hours were analyzed by scanning (SEM) and transmission electron microscopy(TEM). The TEM images of the lymphocytes on the HSB surfaces and intact lymphocytes were evaluated quantitatively by image processor-analyzer. PSt, PHEMA-PSt random copolymer and Biomer surfaces were used as control polymers. The lymphocytes adhered to the control polymer surfaces were observed to be noticeable deformed and were in a **cell** death condition after 3 hours. On the contrary, the lymphocytes adhered to the HSB surfaces retained the ultrastructures of plasma membrane, mitochondoria and nuclear membrane the same as those of intact lymphocytes. The TEM images between the lymphocytes on the HSB surfaces and the intact lymphocytes did not indicate any significant difference in the image analyses. It was found that the microdomain structure surfaces of the HSB have a remarkable effect on lymphocyte **cell** death, compared to those of the control polymer surfaces. This result suggested that the hydrophilic/ **hydrophobic** microdomain structure **surfaces** inhibit lymphocyte **cell** death by regulating the distribution of lymphocyte plasma membrane **proteins**. .cents.Abbreviations:

PHEMA, Poly(2-hydroxyethyl methacrylate); PSt, polystyrene!. (author abst.)

L16 ANSWER 27 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1998:77662 SCISEARCH
THE GENUINE ARTICLE: YQ945
TITLE: Prevention of **protein** adsorption by tethered **poly(ethylene oxide)** layers: Experiments and single-chain mean-field analysis
AUTHOR: McPherson T; Kidane A; Szleifer I; Park K (Reprint)
CORPORATE SOURCE: PURDUE UNIV, DEPT CHEM, W LAFAYETTE, IN 47907 (Reprint); PURDUE UNIV, DEPT CHEM, W LAFAYETTE, IN 47907; PURDUE UNIV, SCH PHARM, W LAFAYETTE, IN 47907
COUNTRY OF AUTHOR: USA
SOURCE: LANGMUIR, (6 JAN 1998) Vol. 14, No. 1, pp. 176-186. Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036. ISSN: 0743-7463.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS
LANGUAGE: English
REFERENCE COUNT: 46

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Prevention of **protein** adsorption by the surface-grafted **poly(ethylene oxide)** (PEG) chains has been well-known. We have examined the mechanisms of how the grafted **PEO** prevents **protein** adsorption. **PEO-poly(propylene oxide)-PEO** (**PEO-PPO-PEO**) **triblock copolymers** were used to graft **PEO** to the trichlorovinylsilane (TCVS)-modified glass by gamma-irradiation. The surface density of the **PEO** chains was varied up to 60 pmol/cm(2) and the number of the ethylene **oxide** (EG) units of the PEG segment was varied from 75 to 128. The adsorption of lysozyme and fibrinogen to the PEG-grafted glass was examined using radiolabeled **proteins**. The surface **protein** concentration decreased as the surface density of the grafted **PEO** increased, but surface **protein** concentration never reached zero. The experimental data. were compared with the predictions by the single-chain mean-field theory. There was very good agreement between the predictions of the theory and the experimental observations. It was found that the mechanism for prevention of **protein** adsorption by the grafted **PEO** chains in the **hydrophobic surfaces** was due to the blocking by the **PEO** segments of the adsorbing sites of the **proteins**. The mechanism of the grafted chains to prevent **protein** adsorption was shown to depend upon the interactions of the surface with the segments of the grafted polymers. Surfaces that did not attract the polymer segments present effective kinetic barriers but were not very good for equilibrium prevention. On the other hand, **hydrophobic surfaces**, such as the ones used in the experimental work, were very effective for reducing the equilibrium amount of **proteins** adsorbed. It was found that the most important parameter in preventing **protein** adsorption by grafted polymers is the surface density of the grafted polymer. The polymer molecular weight, or the chain length, was found to have a weak.

effect.

L16 ANSWER 28 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 8
ACCESSION NUMBER: 1997:494892 BIOSIS
DOCUMENT NUMBER: PREV199799794095
TITLE: Effects of surface-active medium additives on insect **cell surface hydrophobicity** relating to **cell** protection against bubble damage.
AUTHOR(S): Wu, Jianyong (1); Ruan, Qian; Lam, H. Y. Peter
CORPORATE SOURCE: (1) Hong Kong Polytechnic Univ., Dep. Applied Biol. Chem. Technol., Hung Hom, Kowloon Hong Kong
SOURCE: Enzyme and Microbial Technology, (1997) Vol. 21, No. 5, pp. 341-348.
ISSN: 0141-0229.
DOCUMENT TYPE: Article
LANGUAGE: English
AB A number of medium additives such as **Pluronic** F68, methylcellulose, and serum have been shown to decrease the **adhesion** of animal **cells** to air bubbles, thus reducing **cell** damage by the bubbles at rupture. The effect may be associated with the interactions between the additives and the **cells**. One possible mechanism is that the additives adsorb to the **cell** membrane through a hydrophobic interaction, resulting in decreased **hydrophobicity** of the **cell surface**. This consequently reduces **cell adhesion** to gas bubbles. To test this hypothesis, we measured the hydrophobicity (**adhesion** to a hydrocarbon) of two insect **cell** lines in the presence of medium additives including **Pluronic** F68, methylcellulose, polyethylene glycol (PEG), and fetal bovine serum. All these additives except PEG caused substantial reduction in **cell surface hydrophobicity** which was consistent with their effect of decreasing **cell adhesion** to gas bubbles. In addition, significant adsorption was detected for the nonionic surfactants **Pluronic** and PEG to the insect **cells**. The findings are very helpful for elucidating the mechanisms of animal **cell** protection by surface-active chemicals.

L16 ANSWER 29 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R) DUPLICATE 9
ACCESSION NUMBER: 97:415262 SCISEARCH
THE GENUINE ARTICLE: XA667
TITLE: Preparation and characterization of polyetherurethaneureas containing methyl- or fluoro substituted biphenyldiyl in hard segments
AUTHOR: Sugiyama K (Reprint); Akita S; Tomoi Y; Hanaki K; Shiraishi K; Ueda K
CORPORATE SOURCE: KINKI UNIV, FAC ENGN, DEPT IND CHEM, 1 UMENOBE, HIGASHIHIROSHIMA 73921, JAPAN (Reprint); SANYU RESIN CO LTD, TAKATSUKI, OSAKA 569, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: NIPPON KAGAKU KAISHI, (FEB 1997) No. 2, pp. 139-146.
Publisher: CHEMICAL SOC JAPAN, 1-5 KANDA-SURUGADAI CHIYODA-KU, TOKYO 101, JAPAN.
ISSN: 0369-4577.
DOCUMENT TYPE: Article; Journal

FILE SEGMENT: PHYS
LANGUAGE: Japanese
REFERENCE COUNT: 15
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Polyetherurethaneureas (PEUUs) including methyl- or fluoro substituted biphenyldiyls(BP, nMBP, nFBP) in main chain were obtained from a typical two step addition polymerization of polytetrahydrofuran #1000(PTHF) to 4,4'-methylene bis(phenyl isocyanate) (MPI) in the presence of the substituted biphenyldiols, using ethylenediamine (EDA) as a chain extension reagent. Biphenyldiols used were 4,4'-biphenyldiol (BP), 3,3'-dimethyl-4,4'-biphenyldiol (2MBP), 3,3', 5,5'-tetramethyl-4,4'-biphenyldiol(4MBP), 3,3'-difluoro-4,4'-biphenyldiol (2MBP), 3,3', 5,5'-tetrafluoro-4,4'-biphenyldiol (4FBP), and 2,2', 3,3', 5,5', 6,6'-octafluoro-4,4'-biphenyldiol (8FBP). Polyaddtion with a molar ratio of 0.5 : 0.5 : 2 : 1 for the biphenyidiol : PTHF : MPI : EDA in the mixed solvent of DMSO and IBMK(1 : 1) gave the PEUUs such as PEUU-BP, PEUU-nMBP, PEUU-nFBP. Parent polyetherurethaneurea (PEUU) was also prepared with a molar ratio of 1 : 2 : 1 for PTHF : MPI : EDA. XPS spectra of the PEUUs indicated that the hydrophobic segments containing the substituted biphenyldiyl moieties are located on the surface of the PEUUs film in air. The measurements of contact angle to water confirmed that the introduction of methyl groups or fluorine atoms into biphenyl ring results in higher **hydrophobicity** of PEUUs film **surface**. The tensile modulus(E) showed the values of E=109.1 MPa and E=129.3 MPa for PEUU-4MBP and PEUU-4FBP, respectively. It was also found that PEUU-nMBP and PEUU-nFBP, adsorb both bovine serum albumin and human serum gamma-globulin with a single layer. In **cell** culture test, the PEUUs films showed the **adhesiveness** of mouse fibroblast(L-929). Because of their mechanical and biocompatible properties, PEUU-nMBP and PEUU-nFBP are expected to be useful materials as an artificial blood vessel.

L16 ANSWER 30 OF 53 MEDLINE DUPLICATE 10
ACCESSION NUMBER: 1998279680 MEDLINE
DOCUMENT NUMBER: 98279680 PubMed ID: 9616708
TITLE: Fibrinogen-dependent adherence of macrophages to surfaces coated with **poly(ethylene oxide)/poly(propylene oxide) triblock copolymers**
AUTHOR: O'Connor S M; Patuto S J; Gehrke S H; Retzinger G S
CORPORATE SOURCE: Department of Chemical Engineering, University of Cincinnati, Ohio 45221, USA.
SOURCE: ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, (1997 Dec 31) 831 138-44.
Journal code: 5NM; 7506858. ISSN: 0077-8923.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199806
ENTRY DATE: Entered STN: 19980708
Last Updated on STN: 19980708
Entered Medline: 19980624

AB The role of fibrinogen in the adherence of macrophages to polymer surfaces was studied using a human **cell** line (THP-1

cells) and polystyrene-divinylbenzene beads coated with **poly(ethylene oxide)/poly(propylene oxide)** copolymers of the form **PEO** alpha **PPO** beta **PEO** alpha. The amphiphilic character of the surface of the beads was varied using a series of copolymers with constant **PPO** core lengths but different **PEO** segments. Fibrinogen-dependent adherence of monocytes/macrophages to the modified beads was then assessed. The adherence of THP-1 **cells** to copolymer-coated beads correlates well with the amount of fibrinogen bound to the beads. Those beads coated with the most **hydrophobic surfactant** molecules bound the most fibrinogen and the most **cells**. On these surfaces, the concentration of fibrinogen was less than half that of the **protein** on unmodified beads. Despite the lower amount of bound fibrinogen, the number of adherent **cells** was 37% greater than the number of adherent **cells** on fibrinogen-coated, copolymer-free beads. Beads coated with the most hydrophilic surfactants bound just 10% the amount of fibrinogen bound to unmodified beads. On these surfaces, the number of adherent **cells** was decreased by approximately 25% with respect to the number of **cells** bound to beads coated with fibrinogen alone. We propose that the **hydrophobic surfactant** molecules may act as inflammatory agents by facilitating fibrinogen-dependent cellular **adhesion**.

L16 ANSWER 31 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 97:98726 SCISEARCH
THE GENUINE ARTICLE: WD916
TITLE: Adsorption of surface-modified colloidal gold particles onto self-assembled monolayers: A model system for the study of interactions of colloidal particles and organic surfaces
AUTHOR: Fan H Y; Lopez G P (Reprint)
CORPORATE SOURCE: UNIV NEW MEXICO, DEPT CHEM & NUCL ENGN, FARRIS ENGN CTR 209, ALBUQUERQUE, NM 87131 (Reprint); UNIV NEW MEXICO, DEPT CHEM & NUCL ENGN, FARRIS ENGN CTR 209, ALBUQUERQUE, NM 87131; UNIV NEW MEXICO, DEPT CHEM, ALBUQUERQUE, NM 87131
COUNTRY OF AUTHOR: USA
SOURCE: LANGMUIR, (22 JAN 1997) Vol. 13, No. 2, pp. 119-121. Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.
ISSN: 0743-7463.
DOCUMENT TYPE: Letter; Journal
FILE SEGMENT: PHYS
LANGUAGE: English
REFERENCE COUNT: 21

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Self-assembled monolayers (SAMs) were formed from omega-substituted alkanethiols, namely (1-mercaptoundec-11-yl)hexa(ethylene glycol) (HS(CH2)(11)(OCH2CH2)(6)OH) and 1-dodecanethiol (HS(CH2)(11)CH3), on the surface of planar gold films and on colloidal gold particles. A quantitative method for studying the physical adsorption of SAM-modified gold colloids onto the planar SAMs was developed. X-ray photoelectron spectroscopy (XPS) and scanning electron microscopy (SEM) were used to measure the composition of planar SAMs and to quantify the extent of

colloidal adsorption, respectively. Results confirm that the colloids studied adsorb from the aqueous solution more extensively to **hydrophobic surfaces**, that the extent of adsorption increases with particle **hydrophobicity**, and that oligo(ethylene glycol) **surfaces** are resistant to colloidal adsorption. Colloidal gold particles and flat gold substrates modified with SAMs form a convenient and versatile model system for examining existing theoretical models associated with the adsorption of colloids and **proteins**, and cellular attachment and **adhesion** at solid surfaces.

L16 ANSWER 32 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 96:737618 SCISEARCH
THE GENUINE ARTICLE: VK976
TITLE: CHEMICAL MODIFICATION OF SURFACE-ACTIVE **POLY (ETHYLENE OXIDE)-POLY(PROPYLENE OXIDE) TRIBLOCK COPOLYMERS**
AUTHOR: LI J T; CARLSSON J; LIN J N; CALDWELL K D (Reprint)
CORPORATE SOURCE: UNIV UTAH, DEPT BIOENGN, CTR BIOPOLYMERS INTERFACES, SALT LAKE CITY, UT, 84112 (Reprint); UNIV UTAH, DEPT BIOENGN, CTR BIOPOLYMERS INTERFACES, SALT LAKE CITY, UT, 84112; DIAGNOST PROD CO, LOS ANGELES, CA, 90045; PHARMACIA DIAGNOST AB, S-75182 UPPSALA, SWEDEN
COUNTRY OF AUTHOR: USA; SWEDEN
SOURCE: BIOCONJUGATE CHEMISTRY, (SEP/OCT 1996) Vol. 7, No. 5, pp. 592-599.
ISSN: 1043-1802.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 39

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB A general route has been developed to chemically modify a series of **poly(ethylene oxide)-poly (propylene oxide) triblock copolymers** with molecular weights from 6500 to 14 600. It is initiated by the introduction of p-nitrophenyl groups; such nitrophenyl conjugated copolymers are stable in an organic milieu and in a dry state but-are seen to react easily with **amino** -containing molecules including small **peptides**. Among them, introduction of 2-pyridyl disulfide groups after coupling with 2-(2-pyridyldithio)ethylamine enables the selective attachment; of thiol-containing molecules. The released thiopyridone in such thiol-disulfide reactions can be used to quantify the content of 2-pyridyl disulfide groups. In addition, a new type of modified copolymers was developed for the radioisotope (I-125) labeling purpose that consists of a reaction of nitrophenyl conjugated copolymers with hydrazine and a subsequent coupling with N-succinimidyl 3-(4-hydroxyphenyl)propionate (Bolton-Hunter reagent). Adsorption studies of I-125-labeled and 2-pyridyl disulfide conjugated copolymers on polystyrene particles are consistent with previous determinations of surface coverage using other technologies, in turn indicating that this new chemical modification does not alter their **surfactant** properties on **hydrophobic** solid phase. The coating of common **hydrophobic surfaces** with 2-pyridyl disulfide conjugated copolymers has been demonstrated as a general and robust

immobilization method to generate a high-sensitivity bioactive surface with low nonspecific binding. The optimal space between immobilized ligands can also be controlled by incubating the solid phase with solutions containing mixtures with different ratios of unmodified and modified copolymers.

L16 ANSWER 33 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 11
ACCESSION NUMBER: 1997:124960 BIOSIS
DOCUMENT NUMBER: PREV199799431463
TITLE: Insights into protective effects of medium additives on animal **cells** under fluid stresses: The hydrophobic interactions.
AUTHOR(S): Wu, Jianyong
CORPORATE SOURCE: Hong Kong Polytech. Univ., Dep. Applied Biol. Chem. Technol., Kowloon Hong Kong
SOURCE: Cytotechnology, (1996) Vol. 22, No. 1-3, pp. 103-109. ISSN: 0920-9069.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Animal **cells** in suspension culture can suffer severe mechanical damage from bursting gas bubbles or other hydrodynamic force sources. Certain chemical additives in the culture media, particularly some surface-active chemicals, can effectively protect animal **cells** against such damage. Previously we proposed that the protective effect is associated with the adsorption of the additives in the **cell** membrane through **hydrophobic** binding of the **surface**-active molecules to the membrane. Adsorption of the additives to the **cell** membrane may lead to decreased **hydrophobicity** of the **cell surface**, thus eliminating **cell adhesion** to bubbles and reducing **cell** damage from bursting bubbles. In this study, we measured the hydrophobicity of two insect **cell** lines based on **cell adhesion** to hydrocarbon phase and its influence by surface-active chemicals, **Pluronic** F68, a methylcellulose and a polyethylene glycol. The experimental results showed strong support for the aforecited **cell** protection mechanism.

L16 ANSWER 34 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1995:414095 BIOSIS
DOCUMENT NUMBER: PREV199598428395
TITLE: Suppression of thrombus formation during extracorporeal circulation by improved biocompatibility of dialyzer membrane and use of peptidyl antithrombogenic agents.
AUTHOR(S): Ito, Satoshi
CORPORATE SOURCE: Dep. Urol., Osaka City Univ. Med. Sch., Osaka Japan
SOURCE: Journal of the Osaka City Medical Center, (1995) Vol. 43, No. 3, pp. 171-181. ISSN: 0386-4103.
DOCUMENT TYPE: Article
LANGUAGE: Japanese
SUMMARY LANGUAGE: Japanese; English
AB Suppression of platelet **adhesion** and aggregation upon contact with artificial surfaces is important in procedures involving extracorporeal circulation such as hemodialysis. Two new methods for such suppression are proposed. One involves a coating of

hydrophilic hydrophobic **block copolymers** on dialyzer membranes for improved antithrombogenic effects, and the other involves use of synthetic **peptides** as antithrombogenic agents. The effects of a coating made of hydrophilic-**hydrophobic block copolymers** on the **hydrophobic surface** of a poly(acrylonitrile) (PAN) hemodialyzer were evaluated in terms of platelet stimulation. Coating anchored hydrophobic **blocks** of the **copolymer** on the surface and the hydrophilic blocks were therefore oriented toward the blood/hemodialyzer interface, according to results of water-wettability measurements. The coating procedure reduced stimulation of platelets in contact with PAN, which was evaluated by assay of the intracellular calcium ion concentration of the platelets. Scanning electron microscopy showed suppressed platelet **adhesion** on the coated PAN surface. Platelet-fibrinogen binding is needed for **adhesion** and aggregation of platelets activated by contact with artificial surfaces. The domain of the platelet membrane receptor that binds to fibrinogen is a sequence of 11 **amino** acids termed B12. Synthesized B12 and shorter-chain analogues dose dependently suppressed platelet aggregation in vitro, and continuous injection of B12 inhibited platelet **adhesion** in vivo. These synthetic **peptides** could be used as antithrombogenic agents during extracorporeal circulation. These findings may contribute to improved biocompatibility during hemodialysis.

L16 ANSWER 35 OF 53 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 94:226985 SCISEARCH
THE GENUINE ARTICLE: NB986
TITLE: ANALYSIS ON THE SURFACE-ADSORPTION OF PEO PPO PEO **TRIBLOCK COPOLYMERS** BY RADIOLABELING AND FLUORESCENCE TECHNIQUES
AUTHOR: AMIJI M M; PARK K (Reprint)
CORPORATE SOURCE: PURDUE UNIV, SCH PHARM, W LAFAYETTE, IN, 47907 (Reprint); PURDUE UNIV, SCH PHARM, W LAFAYETTE, IN, 47907
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF APPLIED POLYMER SCIENCE, (25 APR 1994) Vol. 52, No. 4, pp. 539-544. ISSN: 0021-8995.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS; ENGI
LANGUAGE: ENGLISH
REFERENCE COUNT: 28

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB We have examined the adsorption of **poly** (**ethylene oxide**)/**poly** (**propylene oxide**)/**poly**(**ethylene oxide**) (**PEO/PPO/PEO**) **triblock copolymers** (**Pluronics**)(TM)) on dimethyldichlorosilane-treated glass (DDS-glass). The surface concentration of I-125-labeled **Pluronic** F-68(76/30/76) reached a maximum of 0.3 mug/cm2 when the bulk concentration in the adsorption solution was 3.0 mg/mL. Above 5.0 mg/mL, the surface **Pluronic** F-68 concentration started to decrease and reached 0.17 mug/cm2 when the bulk concentration for adsorption was 10 mg/mL. The surface concentration of **Pluronic F-108** (129/56/129), on the other hand, increased to 4.0

mug/cm2 at the same bulk concentration. Fluorescence spectroscopic studies using pyrene suggested that the **Pluronic** F-68 molecules self-associated at the bulk concentration of 5.0 mg/mL and above. Because the aggregates are expected to expose the hydrophilic **PEO** segments to water, they may have lower affinity to DDS-glass. Aggregation of **Pluronic** F-68 also decreases the number of individual **Pluronic** molecules for adsorption. Pyrene fluorescence in **Pluronic F-108** solution, however, suggests that **Pluronic F-108** molecules do not form aggregates. It appears that the high surface concentrations of **Pluronic F-108** may result from the preferential adsorption of individual molecules in multilayers. This explains the high effectiveness of **Pluronic F-108** in preventing **protein** adsorption and platelet **adhesion** when adsorbed on to the **hydrophobic surface**. (C) 1994 John Wiley & Sons, Inc.

L16 ANSWER 36 OF 53 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 94274745 MEDLINE
DOCUMENT NUMBER: 94274745 PubMed ID: 7516339
TITLE: Inhibition of platelet spreading from plasma onto glass by an adsorbed layer of a novel fluorescent-labeled **poly(ethylene oxide)**/poly(butylene oxide) **block copolymer**: characteristics of the exclusion zone probed by means of polystyrene beads and macromolecules.
AUTHOR: Gingell D; Owens N
CORPORATE SOURCE: Department of Anatomy and Developmental Biology, University College London, United Kingdom.
SOURCE: JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, (1994 Apr) 28 (4) 491-503.
Journal code: HJJ; 0112726. ISSN: 0021-9304.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199407
ENTRY DATE: Entered STN: 19940729
Last Updated on STN: 19960129
Entered Medline: 19940715

AB We have investigated the anti-**adhesive** properties of a newly synthesized fluorescent **triblock copolymer** containing **poly(ethylene oxide)**. This adsorbs from aqueous solution onto glass that has been rendered **hydrophobic**. When the polymer-treated **surface** was exposed to human platelet-rich plasma (PRP) or whole blood at 37 degrees C, platelet **adhesion** and spreading were prevented. Avid **adhesion** and rapid platelet spreading occurred along tracks scraped in the adsorbed polymer coating, as seen by video-enhanced interference reflection microscopy. Leukocytes from whole blood are eventually able to adhere to the polymer-treated surface and were seen to remove labeled polymer from their vicinity and accumulate it at the **cell** body. Interferometry using polystyrene spheres showed that they do not adhere to polymer-coated glass and are unable to approach closer than 70-95 nm. On scraped tracks, beads make molecular contacts with the glass. Because the

fully extended solvated (EO)400 arms may extend up to 100 nm from the glass, this suggests that the polymer forms a monolayer with the hydrophilic arms projecting into the water, whereas the hydrophobic (BO)55 segment binds the molecule to the **hydrophobic surface**. Another tri-bloc copolymer with shorter hydrophilic arms allows particles to approach more closely.

L16 ANSWER 37 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 13
ACCESSION NUMBER: 1994:310624 BIOSIS
DOCUMENT NUMBER: PREV199497323624
TITLE: **Surface** coating of hydrophilic-**hydrophobic block** co-**polymers** on a poly(acrylonitrile) haemodialyser reduces platelet **adhesion** and its transmembrane stimulation.
AUTHOR(S): Matsuda, Takehisa (1); Ito, Satoshi
CORPORATE SOURCE: (1) Dep. Bioeng., Natl. Cardiovascular Cent., Res. Inst., 5-7-1 Fujishirodai, Suita, Osaka 565 Japan
SOURCE: Biomaterials, (1994) Vol. 15, No. 6, pp. 417-422. ISSN: 0142-9612.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Surface design aimed at reduced **adhesion** and preserved functions of platelets is of great importance for extracorporeal devices. In this study, a coating technique using hydrophilic-hydrophobic **block** co-**polymers** on a hydrophobic poly(acrylonitrile) (PAN) haemodialyser was explored. The hydrophilic **block** of co-**polymers** was composed of either poly(methoxy polyethylene glycol methacrylate) or poly(dimethyl acrylamide), and the hydrophobic block was poly(methyl methacrylate). The co-polymers were coated on the dialyser membrane by means of a solution coating method. Upon coating, the hydrophobic **block** of the co-**polymers** was anchored on a PAN membrane and the hydrophilic block oriented towards the blood-material interface. This was deduced from water wettability measurements. Significantly reduced transmembrane stimulation of platelets was observed, which was evaluated by determining the intracellular calcium ion concentration of platelets eluted through treated hollow fibres. This suppression was enhanced as the relative fraction of the hydrophilic **block** of the co-**polymers** increased. Furthermore, the number of platelets adhering to the co-polymer-coated PAN membrane was drastically reduced. Thus, coating of the hydrophilic-hydrophobic **block** co-**polymers** provided better biocompatibility on a hydrophobic PAN dialyser.

L16 ANSWER 38 OF 53 JICST-EPlus COPYRIGHT 2002 JST
ACCESSION NUMBER: 950549217 JICST-EPlus
TITLE: Suppression of Thrombus Formation during Extracorporeal Circulation by Improved Biocompatibility of Dialyzer Membrane and Use of Peptidyl Antithrombogenic Agents.
AUTHOR: ITO SATOSHI
CORPORATE SOURCE: Osaka City Univ., Med. Sch.
SOURCE: Osakashi Igakkai Zasshi (Journal of the Osaka City Medical Center), (1994) vol. 43, no. 3, pp. 171-181. Journal Code: F0955A (Fig. 20, Ref. 36)

ISSN: 0386-4103
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
LANGUAGE: Japanese
STATUS: New

AB Suppression of platelet **adhesion** and aggregation upon contact with artificial surfaces is important in procedures involving extracorporeal circulation such as hemodialysis. Two new methods for such suppression are proposed. One involves a coating of hydrophilichydrophobic **block copolymers** on dialyzer membranes for improved antithrombogenic effects, and the other involves use of synthetic **peptides** as antithrombogenic agents. The effects of a coating made of hydrophilic-**hydrophobic block copolymers** on the **hydrophobic surface** of a poly(acrylonitrile)(PAN) hemodialyzer were evaluated in terms of platelet stimulation. Coating anchored hydrophobic **blocks** of the **copolymer** on the surface and the hydrophilic blocks were therefore oriented toward the blood/hemodialyzer interface, according to results of water-wettability measurements. The coating procedure reduced stimulation of platelets in contact with PAN, which was evaluated by assay of the intracellular calcium ion concentration of the platelets. Scanning electron microscopy showed suppressed platelet **adhesion** on the coated PAN surface. Platelet-fibrinogen binding is needed for **adhesion** and aggregation of platelets activated by contact with artificial surfaces. The domain of the platelet membrane receptor that binds to fibrinogen is a sequence of 11 **amino** acids termed B12. Synthesized B12 and shorter-chain analogues dose-dependently suppressed platelet aggregation in vitro, and continuous injection of B12 inhibited platelet **adhesion** in vivo. These synthetic **peptides** could be used as antithrombogenic agents during extracorporeal circulation. These findings may contribute to improved biocompatibility during hemodialysis. (author abst.)

L16 ANSWER 39 OF 53 MEDLINE DUPLICATE 14

ACCESSION NUMBER: 93237163 MEDLINE
DOCUMENT NUMBER: 93237163 PubMed ID: 8476790
TITLE: Surface properties of RGD-**peptide** grafted polyurethane **block copolymers**: variable take-off angle and cold-stage ESCA studies.
AUTHOR: Lin H B; Lewis K B; Leach-Scampavia D; Ratner B D; Cooper S L
CORPORATE SOURCE: Department of Chemical Engineering, University of Wisconsin-Madison 53706.
CONTRACT NUMBER: HL-24046 (NHLBI)
HL-47179 (NHLBI)
RR-02196 (NCRR)
SOURCE: JOURNAL OF BIOMATERIALS SCIENCE, POLYMER EDITION, (1993) 4 (3) 183-98.
Journal code: AY7; 9007393. ISSN: 0920-5063.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199305
ENTRY DATE: Entered STN: 19930611

Last Updated on STN: 19930611
Entered Medline: 19930527

AB Variable take-off angle and cold-stage ESCA measurements were utilized to analyze the surface composition of five polyurethane **block copolymers**. The **polymers** studied included a PTMO-polyurethane control, a carboxylated version of the control polyurethane, and three different **peptide** grafted (GRGESY, GRGDSY, and GRGDVY) polyurethanes. On dry samples the nitrogen signal detected using ESCA decreased with increasing take-off angle (i.e. as the specimen was probed closer to the surface) for all five polymers. This was believed to be due to the depletion of nitrogen-containing urethane hard segments at the surface. For all five polymers, the surface nitrogen concentration, associated with the hard segment, increased upon hydration. A greater increase of nitrogen concentration was observed for the **peptide** grafted polymers which suggests that grafting of the hydrophilic **peptides** to the polyurethane augments the hard segment enrichment at the surface upon hydration. Upon dehydration, the nitrogen concentration decreased for all five polymers suggesting migration of the more **hydrophobic** PTMO soft segment to the **surface**. In vitro endothelial **cell adhesion** showed an increase of **cell** attachment on prehydrated RGD-containing **peptide** grafted polyurethanes, but not on the other polymers. This result suggests an enhancement of **peptide** density at the aqueous interface, in good agreement with the ESCA studies.

L16 ANSWER 40 OF 53 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 93078065 EMBASE
DOCUMENT NUMBER: 1993078065
TITLE: Influence of sub-inhibitory concentrations of antibacterials on the surface properties and **adhesion** of Escherichia coli.
AUTHOR: Loubeyre C.; Desnottes J.F.; Moreau N.
CORPORATE SOURCE: Ctr National Recherche Scientifique, CERCOA, BP28,94320 Thiais, France
SOURCE: Journal of Antimicrobial Chemotherapy, (1993) 31/1 (37-45).
ISSN: 0305-7453 CODEN: JACHDX
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The effect of sub-inhibitory concentrations of antibacterials, including quinolones, on the surface properties of a uropathogenic strain of Escherichia coli was examined. The effect on the charge and **hydrophobicity** of the **cell surface** was assessed by means of partition between two aqueous phases, polyethylene glycol and dextran. Antibiotics at 1/8 x MIC inhibited **adhesion** to uroepithelial **cells**, and induced an increase in bacterial charge and hydrophobicity. Inhibition of **adhesion** correlated with increased charge, but not with hydrophobicity. The influence of magnesium on the inhibition of **adhesion** by sub-MICs of pefloxacin was also investigated. Loss of the anti-**adhesive** property of pefloxacin was observed with increasing magnesium concentrations, suggesting that

quinolones should be free from magnesium to induce an inhibition of **adhesion**. Examination by electron microscopy showed a disappearance of fimbriae following treatment of E. coli **cells** with 1/8 x MIC of pefloxacin.

L16 ANSWER 41 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1992-357218 [43] WPIDS
CROSS REFERENCE: 1987-334875 [47]; 1987-334879 [47]; 1990-022064 [03]; 1990-090377 [12]; 1990-216790 [28]; 1991-086804 [12]; 1991-222237 [30]; 1991-230134 [31]; 1991-259890 [35]; 1991-266501 [36]; 1992-006802 [01]; 1992-398518 [48]; 1994-233206 [39]
DOC. NO. CPI: C1992-158619
TITLE: Ethylene oxide-propylene oxide **block copolymer** - used in malaria therapy esp. cerebral malaria, is ischaemia treatment.
DERWENT CLASS: A25 A96 B04 C03
INVENTOR(S): HUNTER, R L
PATENT ASSIGNEE(S): (UYEM-N) UNIV EMORY
COUNTRY COUNT: 38
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 5152979	A	19921006	(199243)*		11
WO 9303738	A1	19930304	(199311)	EN	30
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA SE					
W: AT AU BB BG BR CA CH CS DE DK ES FI GB HU JP KP KR LK LU MG MN MW NL NO PL RO RU SD SE					
AU 9224886	A	19930316	(199328)		
JP 06510044	W	19941110	(199504)		
AU 656224	B	19950127	(199512)		
EP 744952	A1	19961204	(199702)	EN	
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL SE					

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 5152979	A	Cont of	US 1986-863582	19860515
		CIP of	US 1987-43888	19870429
		Div ex	US 1987-45459	19870507
		Cont of	US 1989-303791	19890130
		Cont of	US 1989-403017	19890905
		CIP of	US 1990-522297	19900511
			US 1991-745066	19910814
WO 9303738	A1		WO 1992-US6867	19920814
AU 9224886	A		AU 1992-24886	19920814
JP 06510044	W		WO 1992-US6867	19920814
			JP 1993-504479	19920814
AU 656224	B		AU 1992-24886	19920814
EP 744952	A1		EP 1992-918261	19920814
			WO 1992-US6867	19920814

FILING DETAILS:

PATENT NO	KIND	PATENT NO

US 5152979	A	Div ex	US 4801452
		CIP of	US 5047236
AU 9224886	A	Based on	WO 9303738
JP 06510044	W	Based on	WO 9303738
AU 656224	B	Previous Publ.	AU 9224886
		Based on	WO 9303738
EP 744952	A1	Based on	WO 9303738

PRIORITY APPLN. INFO: US 1991-745066 19910814
AN 1992-357218 [43] WPIDS
CR 1987-334875 [47]; 1987-334879 [47]; 1990-022064 [03]; 1990-090377 [12]; 1990-216790 [28]; 1991-086804 [12]; 1991-222237 [30]; 1991-230134 [31]; 1991-259890 [35]; 1991-266501 [36]; 1992-006802 [01]; 1992-398518 [48]; 1994-233206 [39]
AB US 5152979 A UPAB: 19940907
A method for treating vascular obstructions caused by abnormal **cells** in a human or animal comprises injection of a soln. of a surface active ethylene oxide/propylene oxide **block copolymer** of formula: HO(C2H4O)b(C3H6O)a(C24O)bH (I)

In (I) a = an integer such that the hydrophobe (C3H6O) total has a M.wt. of 950-4000 d; and b = an integer such that the hydrophilic (C2H4O) portion is between 50% and 90% of the copolymer.

USE/ADVANTAGE - Many diseases, involving blood **cell** abnormalities, can cause blockages in the microcirculation, in turn causing severe ischaemia in the tissue. These diseases include malaria, and in cerebral or other severe malaria with tissue ischaemia, patients may not survive long enough for antimalarial drugs to be effective. The **copolymer** (I) **blocks adhesion** of **hydrophobic surfaces** and acts as a lubricant to increase blood flow through the damaged tissues. (I) has low toxicity, can be used over a wide range of concns. without adverse side-effects, is not metabolised, and is rapidly excreted (up to 90% over 3 hrs). It can therefore be administered over long periods. Pref. methods of admin. are i.v. or im. Use of (I) in the treatment of leukaemia is also disclosed, and also compsns. with fibrinolytic agents or anticoagulants to increase blood flow, or oxygen radical scavenge
Dwg. 0/0
Dwg. 0/0

L16 ANSWER 42 OF 53 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 93193117 MEDLINE
DOCUMENT NUMBER: 93193117 PubMed ID: 1294302
TITLE: Plaque formation in vivo and bacterial attachment in vitro on permanently **hydrophobic** and hydrophilic **surfaces**.
AUTHOR: Olsson J; van der Heijde Y; Holmberg K
CORPORATE SOURCE: Department of Cariology, Faculty of Odontology, University of Goteborg, Sweden.
SOURCE: CARIES RESEARCH, (1992) 26 (6) 428-33.
Journal code: CPK; 0103374. ISSN: 0008-6568.
PUB. COUNTRY: Switzerland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Dental Journals; Priority Journals
ENTRY MONTH: 199304
ENTRY DATE: Entered STN: 19930423

Last Updated on STN: 19970203
Entered Medline: 19930412

AB Highly hydrated **polyethylene oxide** (**PEO**) films represent one type of surface modification which may interfere with biofilm formation. **Protein** adsorption and saliva-mediated bacterial adherence were investigated in vitro on normal and **hydrophobized** glass **surfaces** and on glass **surfaces** with immobilized **PEO** films. More **protein** and bacteria bound to untreated compared to hydrophobized and **PEO**-treated glass. Pellicle and plaque formation was also studied in vivo on ceramic crown **surfaces** either untreated, **hydrophobized** or with immobilized **PEO** films. Pellicle and plaque formation was similar on the untreated ceramic and **PEO** surfaces. Less plaque seemed to collect on these surfaces compared to adjacent normal tooth surfaces. Almost no plaque accumulated on the **hydrophobic** crown **surface** and it was virtually devoid of stainable pellicle. Even after 7 days in the mouth without oral hygiene this **surface** was very **hydrophobic** and the disclosing solution could not spread.

L16 ANSWER 43 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1991-329967 [45] WPIDS
DOC. NO. CPI: C1991-142789
TITLE: Heat-curable anti-clouding compsn. for moulded prods., lenses, etc. - comprises **block** or graft **copolymer** of N-methylol (meth)acrylamide-contg. hydrophilic moiety and **hydrophobic** moiety, and **surfactant**.
DERWENT CLASS: A14 A97 G02
PATENT ASSIGNEE(S): (NIOF) NIPPON OILS & FATS CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 03221566	A	19910930	(199145)*		13
JP 2841621	B2	19981224	(199905)		16

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 03221566	A	JP 1990-18697	19900129
JP 2841621	B2	JP 1990-18697	19900129

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 2841621	B2 Previous Publ.	JP 03221566

PRIORITY APPLN. INFO: JP 1990-18697 19900129
AN 1991-329967 [45] WPIDS
AB JP 03221566 A UPAB: 19930928
Compsn. comprises (A) a **block** or graft **copolymer** comprising (A1) a hydrophilic moiety formed from 2 - 15 wt. %

N-methylol (meth)acrylamide, 3 - 15 wt.% monomer(s) contg. glycidyl **amino**., COOH or acid anhydride and 75 - 95 wt.% a copolymerisable hydrophilic gp. and (A2) a hydrophobic moiety formed from 3 - 30 wt.% monomer(s) contg. glycidyl **amino** COOH or acid anhydride and 70 - 97 wt.% hydrophobic monomer in a wt. ratio of (A1)/(A2) = 50/50 - 95/5 and (B) a surfactant in a wt. ratio of (A)/(B) = 100 : 0.5 - 100 : 30 as solids.

USE/ADVANTAGE- The compsn is hardened at a temp of 60 - 80 deg. C to provide high and durable anti-clouding activity, high **adhesion** with the substrates, high strength and transparency of the hardened film. It is used for providing anti-clouding activity to various moulded prods. helmet shields, instrument covers, lenses. etc.,

0/0

L16 ANSWER 44 OF 53 MEDLINE
ACCESSION NUMBER: 92088589 MEDLINE
DOCUMENT NUMBER: 92088589 PubMed ID: 1751085
TITLE: The effect of surface hydrophilicity on biomaterial-leukocyte interactions.
AUTHOR: Lim F; Cooper S L
CORPORATE SOURCE: Department of Chemical Engineering, University of Wisconsin, Madison 53706.
SOURCE: ASAIO TRANSACTIONS, (1991 Jul-Sep) 37 (3) M146-7. Journal code: ASA; 8611947. ISSN: 0889-7190.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199201
ENTRY DATE: Entered STN: 19920216
Last Updated on STN: 19920216
Entered Medline: 19920129

AB Leukocyte **adhesion** onto a series of polyetherurethanes containing various ratios of **polyethylene oxide** (**PEO**) to polytetramethylene **oxide** (PTMO) in the soft segment was evaluated using an in vitro series shunt. The deposition of polymorphonuclear (PMN) and mononuclear (MN) leukocytes was measured quantitatively using labelling techniques. Results showed that H/H-1, the most **hydrophobic surface**, adsorbed higher amounts of PMN leukocytes. It was also observed that for most materials the number of PMN and MN leukocytes deposited reached a plateau within 15 minutes. Unlike MN adherence, the presence of plasma **proteins** increased the number of PMN leukocytes deposited on the materials.

L16 ANSWER 45 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1990-160444 [21] WPIDS
DOC. NO. CPI: C1990-070061
TITLE: Coating compsn. for metal substrates - comprises self-crosslinking **block** or graft **copolymer** with hydrophilic and **hydrophobic** units, and **surface** active agent.
DERWENT CLASS: A82 G02
PATENT ASSIGNEE(S): (NIOF) NIPPON OILS & FATS CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 02102277	A	19900413	(199021)*		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 02102277	A	JP 1988-255227	19881011

PRIORITY APPLN. INFO: JP 1988-255227 19881011
AN 1990-160444 [21] WPIDS
AB JP 02102277 A UPAB: 19930928
A coating compsn. for metal substrates contains (A) self-crosslinking **block** or graft **copolymer** and (B) surface active agent. (A) comprises hydrophilic polymer section(s) consisting of 5-35 wt.% of structural units derived from at least one selected from radically polymerisable monomer(s) (A-1) (having glycidyl, N-methylol, N-buthoxymethylol, **amino**, carboxyl or sulphonyl gp.) and 65-95 wt.% of structural units derived from hydrophilic monomer(s) (A-2) copolymerisable with monomer (A-1); and hydrophobic polymer section(s) consisting of 5-30 wt.% of structural units derived from monomer(s) selected from (A-1) and 70-95 wt.% of structural unit derived from hydrophobic monomer(s) (A-3) copolymerisable with monomers of (A-1).

(B) is pref. nonionic, anionic, cationic and/or amphoteric surface active agents.

USE/ADVANTAGE - The coating compsn. is used as hydrophilic coatings of various metal substrates, e.g., heat exchangers of air conditioners, radiators of cars, and construction materials. This coating compsn. gives film with good hydrophilic properties and **adhesion**. The hydrophilic property is kept for long period. In addition, water resistance and mechanical strengths are very good.
0/0

L16 ANSWER 46 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1990:520 BIOSIS
DOCUMENT NUMBER: BA89:520
TITLE: **PROTEIN** ADSORPTION FROM BUFFER AND PLASMA ONTO HYDROPHILIC-HYDROPHOBIC **POLYETHYLENE OXIDE**-POLYSTYRENE MULTIBLOCK COPOLYMERS.
AUTHOR(S): GRAINGER D W; OKANO T; KIM S W
CORPORATE SOURCE: DEP. PHARM., UNIV. UTAH, SALT LAKE CITY, UTAH 84112.
SOURCE: J COLLOID INTERFACE SCI, (1989) 132 (1), 161-175. CODEN: JCISA5. ISSN: 0021-9797.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The influence of substrate hydrophilic-hydrophobic balance on the adsorption of **proteins** from buffer and plasma was investigated using a series of amphiphilic multiblock copolymers composed of **poly(ethylene oxide)** (**PEO**) and polystyrene (PS). Adsorption of albumin, fibrinogen, and immunoglobulin G was monitored from single-component buffer, multicomponent buffer, and plasma solutions in contact with polymer-coated beads. **Protein** adsorption from buffer

demonstrated kinetics and adsorption totals that correlated to the hydrophilic-**hydrophobic** content of the **PEO**-PS **surfaces**; however, no significant correlations existed between bulk composition, in vitro, and ex vivo blood compatibility tests. From plasma, adsorption to the surfaces showed two interesting results. First, minimum levels of **protein** adsorption witnessed on a **PEO**-PS (40% **PEO**) copolymer were not observed in the competitive adsorption of the same species from buffer. These results were correlated to minimum platelet **adhesion** and activation in vitro and optimal whole blood compatibility ex vivo. Second, fibrinogen uptake from plasma exhibited transient, fluctuating kinetics on both the **PEO** and PS homopolymer surfaces while two **PEO**-PS copolymer surfaces showed no fluctuations. Overall, few correlations between buffer adsorption, plasma adsorption, or resulting in vitro and ex vivo analyses were observed. This suggests that buffered systems oversimplify the **protein** adsorption scenario and lack significant correlations to surface interactions in whole blood and plasma.

L16 ANSWER 47 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1987-356949 [51] WPIDS
CROSS REFERENCE: 1993-181839 [22]; 1994-074327 [09]; 1995-075205 [10]; 1995-373263 [48]; 1996-457289 [46]
DOC. NO. CPI: C1987-152761
TITLE: **Block copolymers** contg. polysiloxane and urea segments - prepd. by copolymerising di **amino** polysiloxane cpds. with di isocyanate cpd. and e.g. di amine chain extender.
DERWENT CLASS: A23 A26 A81 G03
INVENTOR(S): HOFFMAN, J J; LEIR, C M; TUSHAUS, L A; WIEDERHOLT, G T; HOFFMAN, J; LEIR, C; TUSHAUS, L; WIEDERHOLT, G
PATENT ASSIGNEE(S): (MINN) MINNESOTA MINING & MFG CO
COUNTRY COUNT: 16
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 250248	A	19871223	(198751)*	EN	16
R: BE CH DE ES FR GB IT LI NL SE					
JP 63003029	A	19880108	(198807)		
AU 8774474	A	19871224	(198809)		
BR 8703101	A	19880308	(198815)		
ZA 8704414	A	19890222	(198914)		
JP 08231726	A	19960910	(199646)		14
CA 1339226	C	19970805	(199743)		
EP 250248	B1	19971105	(199749)	EN	35
R: BE CH DE ES FR GB IT LI NL SE					
DE 3752135	G	19971211	(199804)		
ES 2110391	T3	19980216	(199813)		
JP 10060386	A	19980303	(199825)		14
JP 2784761	B2	19980806	(199836)		12
JP 2799381	B2	19980917	(199842)		14
JP 10279915	A	19981020	(199901)		13
JP 10310628	A	19981124	(199906)		14
KR 9609691	B1	19960723	(199922)		
KR 9609692	B1	19960723	(199922)		

JP 2901236	B2	19990607 (199928)		14
CA 1340655	C	19990713 (199947)	EN	
JP 3024678	B2	20000321 (200019)		13
JP 3075470	B2	20000814 (200043)		15

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
EP 250248	A		EP 1987-305431	19870618
JP 63003029	A		JP 1987-153199	19870619
ZA 8704414	A		ZA 1987-4414	19870618
JP 08231726	A	Div ex	JP 1987-153199	19870619
			JP 1996-22759	19870619
CA 1339226	C		CA 1987-540190	19870619
EP 250248	B1		EP 1987-305431	19870618
DE 3752135	G		DE 1987-3752135	19870618
			EP 1987-305431	19870618
ES 2110391	T3		EP 1987-305431	19870618
JP 10060386	A	Div ex	JP 1987-153199	19870619
			JP 1997-152301	19870619
JP 2784761	B2		JP 1987-153199	19870619
JP 2799381	B2	Div ex	JP 1987-153199	19870619
			JP 1996-22759	19870619
JP 10279915	A	Div ex	JP 1987-153199	19870619
			JP 1998-5855	19870619
JP 10310628	A	Div ex	JP 1987-153199	19870619
			JP 1998-5854	19870619
KR 9609691	B1	Div ex	KR 1987-6248	19870619
			KR 1996-17982	19960527
KR 9609692	B1		KR 1987-6248	19870619
JP 2901236	B2	Div ex	JP 1987-153199	19870619
			JP 1998-5854	19870619
CA 1340655	C	Div ex	CA 1987-540190	19870619
			CA 1997-617075	19970516
JP 3024678	B2	Div ex	JP 1987-153199	19870619
			JP 1997-152301	19870619
JP 3075470	B2	Div ex	JP 1987-153199	19870619
			JP 1998-5855	19870619

FILING DETAILS:

PATENT NO	KIND		PATENT NO
DE 3752135	G	Based on	EP 250248
ES 2110391	T3	Based on	EP 250248
JP 2784761	B2	Previous Publ.	JP 63003029
JP 2799381	B2	Previous Publ.	JP 08231726
JP 2901236	B2	Previous Publ.	JP 10310628
JP 3024678	B2	Previous Publ.	JP 10060386
JP 3075470	B2	Previous Publ.	JP 10279915

PRIORITY APPLN. INFO: US 1986-876918 19860620
AN 1987-356949 [51] WPIDS
CR 1993-181839 [22]; 1994-074327 [09]; 1995-075205 [10]; 1995-373263 [48]; 1996-457289 [46]
AB EP 250248 A UPAB: 20000907
Organopolysiloxane-polyurea **block copolymers**

comprise recurring units of formula (I) where Z divalent radical selected from phenylene, alkylene, aralkylene and cycloalkylene; Y = 1-10C alkylene; R = at least 50% methyl with the balance of R radicals selected from 2-12C alkyl, vinylene, phenyl or substd. phenyl; D = H, 1-10C alkyl, or an alkylene radical which completes a ring structure including Y to form a heterocycle or phenyl; B = divalent radical selected from alkylene, aralkylene, cycloalkylene, phenylene, **polyethylene oxide**, polytetramethylene oxide, polycaprolactone and mixt.; A = difunctional moiety selected from -O- or N-G, G = H, 1-10C alkyl, phenyl or an alkylene radical which completes a ring structure incluidng B to form a heterocycle; n = 50 or more; and m = 0-25.

USE/ADVANTAGE - The **block copolymers** have a low Tg, high thermal and oxidative stability, UV resistance, low **surface** energy and **hydrophobicity**, good electrical properties and high permeability to many gases, together with excellent mechanical and elastomeric properties. They are esp. useful, when tackified with a compatible tackifier resin, as pressure sensitive **adhesive** compsns.. They are partic. useful as a pressure-sensitive **adhesive** material that comprises a backing member having a front side and a back side, with a pressure-sensitive **adhesive** mass on the former and a low **adhesion** backsize on the latter; the backsize is composed of a release agent that comprises the **block copolymer** contg. 15-70% hard segments.

Dwg.0/0

ABEQ EP 250248 B UPAB: 19971211

An anhydrous solid compound of general formula HN(D)YSi(R)2O-M+ where: D is hydrogen, an alkyl group of 1 to 10 carbon atoms, phenyl or an alkylene radical of 1 to 10 carbon atoms which completes a ring structure including Y to form a heterocyclic ring; Y is an alkylene radical of 1 to 10 carbon atoms; R is a monovalent optionally substituted alkyl radical having from 2 to 12 carbon atoms, a vinylidene radical or an optionally substituted phenyl radical, subject to the proviso that at least 50% of the R radicals are methyl, and M+ is the cation K+, Li+ or N(CH3)4+.

Dwg.0/0

L16 ANSWER 48 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1986-090867 [14] WPIDS
DOC. NO. CPI: C1986-038669
TITLE: Ageing inhibitor for starch soln. - contains at least of 12-18 carbon higher alcohol and ethylene oxide adduct of higher **fatty acid** and vinyl alcohol contg. carboxy gps..
DERWENT CLASS: A11 A81 E17 G03
PATENT ASSIGNEE(S): (HOKP) HOKUETSU SEISHI KK
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 61036386	A	19860221	(198614)*		5
JP 63067824	B	19881227	(198904)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE

JP 61036386 A JP 1984-157612 19840730

PRIORITY APPLN. INFO: JP 1984-157612 19840730
AN 1986-090867 [14] WPIDS
AB JP 61036386 A UPAB: 19930922
Inhibitor contains, as essential components (a) at least one of 12-18C higher alcohol and ethylene oxide adduct of higher **fatty acid**, (b) and polyvinyl alcohol having COOH gps.

Specifically (a) is a nonionic **surfactant** having a **hydrophobic** moiety anda hydrophilic moiety. Specifically, polyoxyethylene lauryl ether, polyoxyethylene stearyl ether, polyethylene glycol monolaurate, etc. are used. Optimum results is obtd. when the proportion of the mol. wt. of the **polyethylene oxide** residue in the whole mol. wt. is 7.1-44.0 wt.%. Suitable (b) is polyvinyl alcohol contg. 2.6-6.9% COOH gp. and 1500-2400 mol. wt. and 97-98% deg. of saponification. Suitable ratio of (a) to (b) is 1:1-1:3. Suitable amt. of the ageing inhibitor to starch soln. is up to 1.0 wt.%.

USE/ADVANTAGE - Using this ageing inhibitor, the stability and **adhesive** effect of starch soln. is maintained. Not only the workability of starch soln. is improved, but the quality of prods. prepd. using the starch soln. is maintained.
0/0

L16 ANSWER 49 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1987:63995 BIOSIS
DOCUMENT NUMBER: BA83:32321
TITLE: THE EFFECT OF A RANGE OF BIOLOGICAL POLYMERS AND SYNTHETIC SURFACTANTS ON THE **ADHESION** OF A MARINE PSEUDOMONAS-SP STRAIN NCMB-2021 TO HYDROPHILIC AND **HYDROPHOBIC SURFACES**.
AUTHOR(S): HUMPHRIES M; JAWORZYN J F; CANTWELL J B
CORPORATE SOURCE: CORPORATE COLLOID SCI. GROUP, ICI, PO BOX NO 11, HEATH, RUNCORN, CHESHIRE, WA7 4QE, UK.
SOURCE: FEMS (FED EUR MICROBIOL SOC) MICROBIOL ECOL, (1986) 38 (5), 299-308.
CODEN: FMECEZ.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The effect of a range of biological polymers and synthetic surfactants on the **adhesion** of a marine Pseudomonas sp. strain NCMB2021 to hydrophilic glass and hydrophobic polystyrene has been investigated. Brij 56 (**polyethylene oxide** (10) cetyl ether) was the only compound that had a significant effect, almost totally inhibiting the **adhesion** of Pseudomonas sp. NCMB2021 to hydrophobic polystyrene, but having little or no effect on **hydrophobic** glass. The **surfactant** was demonstrated to be effective both when present in the bacterial suspension at low concentrations (approx. 5 ppm), and when pre-adsorbed onto the substratum. Brij 56 was shown to prevent the **adhesion** of a range of marine and fresh-water bacteria to polystyrene. It is proposed that on a hydrophobic substratium Brij 56 is adsorbed via its hydrophobe in such a way that the polyethylene glycol chains are pointing outwards into the aqueous phase giving a surface with a high density of

uncharged, highly hydrated hydrophilic chains, forming a steric barrier which inhibits the **adhesion** of bacteria.

L16 ANSWER 50 OF 53 MEDLINE
ACCESSION NUMBER: 86151445 MEDLINE
DOCUMENT NUMBER: 86151445 PubMed ID: 3952469
TITLE: The adjuvant activity of nonionic **block polymer** surfactants. III. Characterization of selected biologically active surfaces.
AUTHOR: Hunter R L; Bennett B
CONTRACT NUMBER: ES 03791 (NIEHS)
SOURCE: SCANDINAVIAN JOURNAL OF IMMUNOLOGY, (1986 Mar) 23 (3) 287-300.
Journal code: UCW; 0323767. ISSN: 0300-9475.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198604
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19970203
Entered Medline: 19860424

AB We evaluated the molecular and physicochemical properties of surfaces formed by defined layers of **block copolymers** which were especially effective as adjuvants or in the induction of granulomas. The copolymers which were adjuvants formed hydrophilic surfaces with a large area. They bound **protein** in a way which left it particularly accessible to antibody and induced the activation of complement. Copolymers which induced granulomas, in contrast, formed **hydrophobic** crystalline **surfaces**. They bound less **protein** and did not activate complement, but were toxic for macrophages. Their surfaces were found to be similar to those of the mycobacterial glycolipid trehalose-6,6'-dimycolate or quartz, in that they consisted of regular geometric arrays of hydrophilic and hydrophobic adsorptive domains. These studies demonstrated that changes in the size and arrangement of hydrophilic and hydrophobic **blocks** in **copolymers** produce a diversity of surface physicochemical properties which correlate with biologic activity.

L16 ANSWER 51 OF 53 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1985-321653 [51] WPIDS
DOC. NO. CPI: C1985-139263
TITLE: Surface contamination resistant resin moulding mfr. - by applying **block copolymer** with **hydrophobic** and hydrophilic **blocks** to **surface** of resin moulding.
DERWENT CLASS: A18
PATENT ASSIGNEE(S): (MITT) MITSUBISHI MONSANTO KK
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 60226535	A	19851111	(198551)*		11

PRIORITY APPLN. INFO: JP 1984-82213 19840424
AN 1985-321653 [51] WPIDS
AB JP 60226535 A UPAB: 19930925
Process comprises applying **block copolymer** having hydrophobic **block** (A) and hydrophilic molecular chain block (B) in molecule to the surface of a resin moulding having a hydrophilic surface.

Pref. (A) include polymers of acrylate monomers (methyl acrylate, etc.), aromatic vinyl monomers (styrene, etc.), diene monomers (butadiene, etc.), or copolymers of two or more monomers, polymers of polysiloxane (polyester, etc.) or cellulose derivs. Pref. (B) include homopolymers of acrylic monomers (hydroxyalkyl (meth)acrylate, etc.) and copolymers of two or more monomers, polyvinyl alcohols, polyalkylene oxides, **polysaccharides**, polyamino acids, etc.

USE/ADVANTAGE - Mouldings have good antistatic, anticlouding and surface contamination resistant properties, and **adhesiveness**.

0/0

L16 ANSWER 52 OF 53 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1981:215441 BIOSIS
DOCUMENT NUMBER: BA72:425
TITLE: DETERMINATION OF **CELL** MEDIUM INTERFACIAL TENSIONS FROM CONTACT ANGLES IN AQUEOUS POLYMER SYSTEMS.
AUTHOR(S): SCHURCH S; GERSON D F; MCIVER D J L
CORPORATE SOURCE: DEP. OF BIOPHYSICS, UNIV. OF WESTERN ONTARIO, LONDON, ONTARIO N6A 5C1, CANADA.
SOURCE: BIOCHIM BIOPHYS ACTA, (1981) 640 (2), 557-571. CODEN: BBACAQ. ISSN: 0006-3002.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The contact angles on **cell** layers of a series of polymeric droplets from aqueous 2 phase systems of dextran and poly(ethylene glycol) were used to determine the critical or limiting interfacial tension for spreading on the **cell** layers. Test droplets of the denser dextran-rich phase were formed in the lighter poly(ethylene glycol)-rich phase. The interfacial tensions, .gamma., between the phases were determined with the pendant drop method and a linear relationship was found between .gamma.-1/2 and the cosine of the angle the droplets made with the **cell** layers (Good-Girifalco plot). This was used in determining the limiting or critical interfacial tension, .gamma.c, for spreading on the **cell** layers. The value of .gamma.c is a measure of the interfacial energy of the **cell**/bathing medium interface. Values of .gamma.c obtained by this method include the following: 0.65 and 0.84 .mu.N .cntdot. m-1 for human erythrocytes and neutrophils, respectively; 0.93 .mu.N .cntdot. m-1 for porcine pulmonary macrophages; 0.75-3.60 .mu.N .cntdot. m-1 for various transformed murine lymphoid **cell** lines and 2.53 .mu.N .cntdot. m-1 for Balb/c murine spleen lymphocytes. Exposure to various agents has differing effects on .gamma.c. Concanavalin A reduces .gamma.c and bacterial lipopolysaccharide increases .gamma.c of murine spleen lymphocytes. The Ca ionophore, A23187, increases .gamma.c of porcine pulmonary macrophages and murine spleen

lymphocytes. This new method provides a quantitative approach to the **cell surface** energy and **hydrophobicity** which are thought to play an important role in membrane-mediated phenomena and in **cell adhesion**.

L16 ANSWER 53 OF 53 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 77129263 EMBASE
DOCUMENT NUMBER: 1977129263
TITLE: Thrombin adsorption to surfaces and prevention with polyethylene glycol 6,000.
AUTHOR: Wasiewski W.; Fasco M.J.; Martin B.M.; et al.
CORPORATE SOURCE: Dept. Biochem., State Univ. New York Downstate Med. Cent., Brooklyn, N.Y. 11203, United States
SOURCE: Thrombosis Research, (1976) 8/6 (881-886).
CODEN: THBRAA
DOCUMENT TYPE: Journal
FILE SEGMENT: 037 Drug Literature Index
025 Hematology
030 Pharmacology
LANGUAGE: English
AB The validity of thrombin activity measurements requires critical appraisal where the absence of losses due to thrombin adsorption is not demonstrated. At low concentrations, both PEG 6,000 and, to a lesser extent PEG 4,000, prevent such adsorption and may be used in clotting and platelet function assays. Both polymer fractions are readily available, inexpensive, and have relatively uniform properties. These polyethers are essentially inert, highly resistant to decomposition, and they may be kept in solution for indefinite periods. Conventional glassware may be used directly when used in conjunction with diluent solutions containing effective polymer concentrations. Whether the tendency of thrombin to adsorb to various unnatural surfaces has a physiologically important counterpart is not known. Thrombin appears to adsorb to negatively charged, noncharged polar, as well as **hydrophobic surfaces**. Similar **surfaces** of blood **protein** and cellular components or vessel walls may conceivably retain thrombin and localize certain functions of this central **enzyme** in hemostatic processes.

FILE 'HCAPLUS' ENTERED AT 11:06:21 ON 06 JUN 2002
L17 12 S (L12 OR L13) AND ADHER?
L18 2 S L17 NOT L14

L18 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:89409 HCAPLUS
TITLE: Photoreactive self-assembling polyethers for biomedical coatings
AUTHOR(S): Taton, Kristin S.; Guire, Patrick E.
CORPORATE SOURCE: SurModics, Inc., Eden Prairie, MN, 55344, USA
SOURCE: Colloids and Surfaces, B: Biointerfaces (2002), 24(2), 123-132
CODEN: CSBBEQ; ISSN: 0927-7765
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new family of diblock surfactants based on low mol. wt. **polyethylene oxide** and a more hydrophobic block contg. benzophenone is reported. These surfactants self-assemble

out of aq. soln. onto **hydrophobic surfaces** and can be covalently bonded to the surface via irradn. with UV light. Such films on polystyrene possess a static contact angle with water of 55.7.+-.1.7.degree.. Non-specific adsorption of several **proteins** on these surfaces is compared, with the greatest redn. being 89% for fibrinogen. In addn., the coatings have been shown to reduce **adherence** of the bacterium Proteus mirabilis by 95.5%. Surfaces were investigated with at. force microscopy and time of flight-secondary ion mass spectroscopy (TOF-SIMS), which revealed very thin uniform coatings. Such thin wettable and passivating coatings may be desirable on applications where small spatial sepns. must be preserved.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:164105 HCAPLUS
TITLE: The adsorption and functionality of fibrinogen on **hydrophobic surfaces** modified with **poly(ethylene oxide)**-containing copolymer films.
AUTHOR(S): O'Connor, S. M.; Patuto, S. J.; Gehrke, S. H.; Retzinger, G. S.
CORPORATE SOURCE: Department Chemical Engineering, University Cincinnati, Cincinnati, OH, 45221, USA
SOURCE: Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17 (1997), POLY-180. American Chemical Society: Washington, D. C. CODEN: 64AOAA
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB To study the interactions of fibrinogen with surfaces, **triblock copolymers** of the form **PEO** .alpha./**PPO**.beta./**PEO**.alpha. (where **PEO** is **polyethylene oxide** and **PPO** is **polypropylene oxide**) are ideally suited since differences in interactions can be attributed solely to differences in physicochem. properties of the coatings. We have developed a model system in which well-defined monolayers of these copolymers supported by solid, hydrophobic beads, are used to assess the influence of the surface microenvironment on the adsorption and proteolytic degrdn. of fibrin(ogen). The data demonstrate that copolymer identity and/or packing d. influence **protein** adsorption. They also suggest that copolymer films that adsorb fibrinogen may function as clot nucleation sites and, thus, influence a host of fibrin(ogen)-dependent phenomena. While beads coated with copolymers with long PEO segments bind little **protein**, in fibrinogen-depedent fashion, beads coated with copolymers with short PEO segments **adhere** readily to macrophages; such beads also aggregate when stirred in the presence of thrombin, a consequence of interbead fibrin formation.

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 11:07:04 ON 06 JUN 2002)
L19 29 S L17
L20 9 S L19 NOT L15
L21 7 DUP REM L20 (2 DUPLICATES REMOVED)

L21 ANSWER 1 OF 7 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 1
ACCESSION NUMBER: 2002052767 EMBASE
TITLE: Photoreactive self-assembling polyethers for biomedical coatings.
AUTHOR: Taton K.S.; Guire P.E.
CORPORATE SOURCE: P.E. Guire, SurModics, Inc., 9924 West 74th Street, Eden Prairie, MN 55344, United States
SOURCE: Colloids and Surfaces B: Biointerfaces, (2002) 24/2 (123-132).
Refs: 33
ISSN: 0927-7765 CODEN: CSBBEQ
PUBLISHER IDENT.: S 0927-7765(01)00225-9
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English

AB A new family of diblock surfactants based on low molecular weight **polyethylene oxide** and a more hydrophobic block containing benzophenone is reported. These surfactants self-assemble out of aqueous solution onto **hydrophobic surfaces** and can be covalently bonded to the surface via irradiation with ultraviolet light. Such films on polystyrene possess a static contact angle with water of 55.7 .+-. 1.7.degree.. Non-specific adsorption of several **proteins** on these surfaces is compared, with the greatest reduction being 89% for fibrinogen. In addition, the coatings have been shown to reduce **adherence** of the bacterium Proteus mirabilis by 95.5%. Surfaces were investigated with atomic force microscopy and time of flight-secondary ion mass spectroscopy (TOF-SIMS), which revealed very thin uniform coatings. Such thin wettable and passivating coatings may be desirable on applications where small spatial separations must be preserved.

L21 ANSWER 2 OF 7 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2000-513951 [46] WPIDS
CROSS REFERENCE: 2000-204485 [12]; 2000-269187 [18]; 2000-282379 [24]; 2001-601139 [49]
DOC. NO. NON-CPI: N2000-379788
DOC. NO. CPI: C2000-153234
TITLE: Hydrophilic polyurethane-polyurea hydrogel coated material for medical devices e.g. catheters, is obtained by sequentially coating, on a reactive surface, a prepolymer intermediate and a hydrogel forming compound.
DERWENT CLASS: A25 A82 A96 D22 G02 P42 P73
INVENTOR(S): DING, N; FORMAN, M R; HELMUS, M N; HOSTETTLER, F; RHUM, D
PATENT ASSIGNEE(S): (PFIZ) SCHNEIDER USA INC
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG

US 6080488 A 20000627 (200046)* 24

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 6080488	A	Div ex	US 1995-382478	19950201
			US 1998-126376	19980324

PRIORITY APPLN. INFO: US 1995-382478 19950201; US 1998-126376 19980324

AN 2000-513951 [46] WPIDS

CR 2000-204485 [12]; 2000-269187 [18]; 2000-282379 [24]; 2001-601139 [49]

AB US 6080488 A UPAB: 20011126

NOVELTY - Polymer substrate surface made reactive by affixing reactive groups. A prepolymer intermediate, having terminal isocyanate groups, is coated on a substrate to form a tie coat. A hydrogel forming compound containing isocyanate reactive functional groups, is coated on the tie coat to form barrier coat. The hydrogel forming compound is bound with hydrogel forming polymer to form a polymer hydrogel.

DETAILED DESCRIPTION - A lubricious, hydrated hydrophilic polyurethane-polyurea hydrogel coating material is prepared by:

(i) making reactive the **surface** of a hydrophilic or hydrophilicized **hydrophobic** polymer substrate by affixing reactive functional groups to it, where at least a portion of the reactive functional groups are amine containing groups;

(ii) coating a hydrophilic polyurethane prepolymer intermediate, containing terminal isocyanate groups, on the substrate in such a way that terminal isocyanate groups react and covalently bond with the reactive functional groups to form a covalent polyurea bond resulting in the formation of a tie coat of polyurethane-polyurea hydrogel forming polymer which **adheres** to the substrate surface; and

(iii) coating a moisture containing, hydrogel forming compound or mixture, which contains isocyanate reactive functional groups, on the tie coat to form the barrier coat of lubricious, hydrated hydrogel.

In (ii), at least a portion of the terminal isocyanate groups of the prepolymer intermediate remains free in the hydrogel forming polymer to react with other species.

In (iii), the hydrogel forming compound or mixture is bound with the hydrogel forming polymer of the tie coat so that the formed hydrogel is a polyurethane-polyurea polymer hydrogel. The isocyanate reactive functional groups of the hydrogel forming compound or mixture react and form covalent bonds with the free terminal isocyanate groups, thereby directly attaching the formed hydrogel to the tie coat and indirectly attaching it to the substrate surface.

USE - For medical devices (claimed) such as catheters, catheter balloons used in coronary angioplasty, stents, guide wires, metal tubings.

ADVANTAGE - The hydrogel coated material exhibits excellent slipperiness, flexibility, toughness, outstanding permanence against premature wear in body fluids, good compatibility, low toxicity, unusual endurance during insertion of medical device in critical applications within body fluids having complex composition. The

hydrogel coating exhibits exceptional durability even after many test cycles when exposed to dynamic forces in blood. The cohesively bonded, tenaciously **adhered** coating composition is biocompatible, highly suitable for use in contact with blood, demonstrates low coefficient of friction with body fluids. Dwg.0/0

L21 ANSWER 3 OF 7 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1998-414056 [35] WPIDS
CROSS REFERENCE: 1995-006958 [01]; 1995-106943 [14]; 1997-511877 [47]; 1999-477860 [40]
DOC. NO. CPI: C1998-125007
TITLE: Attachment of organisms/molecules for growth or biological analysis - comprises use of **hydrophobic surface** to which **end-group** activated **polymer** is adsorbed, with **bio molecule** conjugated to polymer surface.
DERWENT CLASS: A25 A96 B04 D16 P34
INVENTOR(S): CALDWELL, K D; NEFF, J; TRESCO, P A
PATENT ASSIGNEE(S): (UTAH) UNIV UTAH RES FOUND; (CALD-I) CALDWELL K D; (NEFF-I) NEFF J; (TRES-I) TRESCO P A
COUNTRY COUNT: 82
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9831734	A1	19980723	(199835)*	EN	45
RW: AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
AU 9860182	A	19980807	(199901)		
EP 1002066	A1	20000524	(200030)	EN	
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
KR 2000070229	A	20001125	(200131)		
US 6284503	B1	20010904	(200154)		
JP 2001512565	W	20010821	(200155)		66
AU 740877	B	20011115	(200202)		
US 2002019037	A1	20020214	(200214)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9831734	A1		WO 1998-US337	19980115
AU 9860182	A		AU 1998-60182	19980115
EP 1002066	A1		EP 1998-903402	19980115
			WO 1998-US337	19980115
KR 2000070229	A		WO 1998-US337	19980115
			KR 1999-706456	19990715
US 6284503	B1	Div ex	US 1993-110169	19930820
		CIP of	US 1995-399913	19950307
			US 1997-784203	19970115
JP 2001512565	W		JP 1998-534438	19980115
			WO 1998-US337	19980115

AU 740877	B		AU 1998-60182	19980115
US 2002019037	A1	Div ex	US 1993-110169	19930820
		CIP of	US 1995-399913	19950307
		Cont of	US 1997-784203	19970115
			US 2001-946079	20010904

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9860182	A	Based on	WO 9831734
EP 1002066	A1	Based on	WO 9831734
KR 2000070229	A	Based on	WO 9831734
US 6284503	B1	Div ex	US 5516703
		CIP of	US 5728588
JP 2001512565	W	Based on	WO 9831734
AU 740877	B	Previous Publ.	AU 9860182
		Based on	WO 9831734
US 2002019037	A1	Div ex	US 5516703
		CIP of	US 5728588
		Cont of	US 6284503

PRIORITY APPLN. INFO: US 1997-784203 19970115; US 1993-110169 19930820; US 1995-399913 19950307; US 2001-946079 20010904

AN 1998-414056 [35] WPIDS

CR 1995-006958 [01]; 1995-106943 [14]; 1997-511877 [47]; 1999-477860 [40]

AB WO 9831734 A UPAB: 20020301

The following are claimed: (A) a method for attachment of organisms and molecules for growth or biological analysis, comprising: (a) contacting a **hydrophobic surface** with an **end-group** activated **polymer** (**EGAP**) so that the **EGAP** is adsorbed by the surface; (b) conjugating a natural or recombinant **biomolecule** to the **EGAP** adsorbed to the surface, to form a **biomolecule**-conjugated **EGAP** surface, and (c) contacting this surface with at least 1 organism or molecule so that the organism or molecule **adheres** to the surface; (B) attachment of organisms and molecules to a surface for growth or biological analysis, comprising: (a) modifying a **block copolymer** surfactant with a reactive group to give an **EGAP**; (b) contacting a **hydrophobic surface** with the **EGAP** so that the **EGAP** is adsorbed by the surface; (c) conjugating a thiol-containing **biomolecule** to the **EGAP**, to form a **biomolecule**-conjugated **EGAP** surface, and (d) contacting this surface with an organism or molecule so that the organism or molecule **adheres** to the surface; (C) a method for selecting at least 1 desired organism or molecule from a mixture of at least 2 organisms or molecules, comprising: (a) contacting a **hydrophobic surface** with an **EGAP** so that the **EGAP** is adsorbed by the surface; (b) conjugating a **biomolecule** (which is unique for the desired organism or **biomolecule**) to the **EGAP** attached to the surface, to form a **biomolecule**-conjugated **EGAP** surface; (c) contacting this surface with a mixture of organisms or molecules containing the desired organism or molecule; (d) allowing the

desired organism or molecule to **adhere** to the surface, and (e) removing the non-**adhered** organisms or molecules; (D) coating a hydrophobic biomaterial for use in mammals, comprising: (a) contacting an **EGAP** to a hydrophobic biomaterial, so that the **EGAP** is adsorbed by the biomaterial; (b) conjugating a **biomolecule** to the **EGAP**, to form a **biomolecule** conjugated **EGAP** coated biomaterial, and (c) contacting the mammal with the coated biomaterial; (E) **biomolecule** conjugated **block copolymer** surfactant of formula (I): (HO-PEO)c(R-PEO)d(PPO)b (I) b = 1, 2 or 3; c = 0, 1, 2, 3, 4 or 5; d = at least 1, provided that c + d is 1-6; PEO = a group of formula (C2H4O)u; u = greater than 50; PPO = a group of formula (C3H6O)v; v = greater than 25, and R = a **biomolecule** selected from **proteins**, **peptides**, **amino** acids, **nucleic** acids, **lipids** and **carbohydrates**.

USE - The **biomolecule** conjugated **EGAP** surface may be used for attachment of organisms and/or molecules for growth or biological analysis or for selecting a desired organism or molecule from a mixture. The surface may be used, e.g. for identifying lymphocytes as either T **cells** or B **cells** in diagnosis of various diseases (such as lymphoproliferative malignancies, immunodeficiency diseases or infectious diseases) or for monitoring of transplants. The coated biomaterials may be used in transplantation.

ADVANTAGE - The coating process does not destroy the biological activity of the **biomolecule**. **Cells** are capable of **adhering** to, and growing on, the coated surfaces.

Dwg.0/9

L21 ANSWER 4 OF 7 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 2

ACCESSION NUMBER: 1998:315955 BIOSIS
DOCUMENT NUMBER: PREV199800315955
TITLE: Ultrastructural analysis of the inhibitory activity of PHEMA-PSt-PHEMA ABA type **block copolymer** surfaces, with microdomain spacing of 16nM on lymphocyte **cell** death.
AUTHOR(S): Abe, K. (1); Kikuchi, A.; Ito, E.; Akano, T.; Sakurai, Y.; Horie, T.
CORPORATE SOURCE: (1) Dep. Cardiovasc. Sci., Heart Inst. Japan, Tokyo Women's Med. Coll., 8-1 Kawada-cho, Shinjuku-ku, Tokyo 162 Japan
SOURCE: Japanese Journal of Artificial Organs, (1998) Vol. 27, No. 2, pp. 495-502.
ISSN: 0300-0818.
DOCUMENT TYPE: Article
LANGUAGE: Japanese
SUMMARY LANGUAGE: Japanese; English

AB To evaluate an inhibitory activity of PHEMA-PSt-PHEMA ABA type **block copolymer** (HSB) surfaces with microdomain spacing of 16 nm to rat lymphocyte **cell** death, ultrastructural changes of the lymphocytes **adhered** to the HSB surfaces for 3 hours were analyzed by scanning (SEM) and transmission electron microscopy (TEM). The TEM images of the lymphocytes on the HSB surfaces and intact lymphocytes were evaluated quantitatively by image processor-analyzer. PSt, PHEMA-PSt random copolymer and Biomer surfaces were used as control polymers.

The lymphocytes **adhered** to the control polymer surfaces were observed to be noticeable deformed and were in a **cell** death condition after 3 hours. On the contrary, the lymphocytes **adhered** to the HSB surfaces retained the ultrastructures of plasma membrane, mitochondria and nuclear membrane the same as those of intact lymphocytes. The TEM images between the lymphocytes on the HSB surfaces and the intact lymphocytes did not indicate any significant difference in the image analyses. It was found that the microdomain structure surfaces of the HSB have a remarkable effect on lymphocyte **cell** death, compared to those of the control polymer surfaces. This result suggested that the hydrophilic/ **hydrophobic** microdomain structure **surfaces** inhibit lymphocyte **cell** death by regulating the distribution of lymphocyte plasma membrane **proteins**.

L21 ANSWER 5 OF 7 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96269430 EMBASE
DOCUMENT NUMBER: 1996269430
TITLE: Attachment of bacteria to model solid surfaces' oligo(ethylene glycol) surfaces inhibit bacterial attachment.
AUTHOR: Ista L.K.; Fan H.; Baca O.; Lopez G.P.
CORPORATE SOURCE: Chemical/Nuclear Engineering Dept., 209 Farris Engineering Center, University of New Mexico,Albuquerque, NM 87131, United States
SOURCE: FEMS Microbiology Letters, (1996) 142/1 (59-63). ISSN: 0378-1097 CODEN: FMLED7
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Bacterial **cell** attachment to the surfaces of self-assembled monolayers formed by the adsorption of .omega.-substituted alkanethiols on transparent gold films has been studied under defined bacterial culture and flow conditions. Phase contrast microscopy was used to quantify the attachment of two organisms, one of medical (Staphylococcus epidermidis) and one of marine (Deleya marina) importance. Self-assembled monolayers terminated with hexa(ethylene glycol), methyl, carboxylic acid and fluorocarbon groups were investigated. Over the range of experimental conditions, self-assembled monolayers formed from HS(CH2)11(OCH2,CH2)6OH were found to be uniformly resistant to bacterial attachment, with a 99.7% reduction of attachment for both organisms when compared to the most fouled surface for each organism. On other surfaces, S epidermidis and D. marina were shown to exhibit very different attachment responses to the wettability of the substratum. While the attachment of S epidermidis correlated positively with surface hydrophilicity, D marina showed a preference for **hydrophobic surfaces**. This study suggests that **surfaces** incorporating high densities of oligo(ethylene glycol) are good candidates for surfaces that interact minimally with bacteria.

L21 ANSWER 6 OF 7 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1993:226519 BIOSIS
DOCUMENT NUMBER: PREV199395117694
TITLE: Plaque formation in vivo and bacterial attachment in

vitro on permanently **hydrophobic** and hydrophilic **surfaces**.
AUTHOR(S): Olsson, J.; Van Der Heijde, Y.; Holmberg, K.
CORPORATE SOURCE: Dep. Cariology, Fac. Odontology, University Goteborg, Box 33070, S-400 33 Goteborg Sweden
SOURCE: Caries Research, (1992) Vol. 26, No. 6, pp. 428-433. ISSN: 0008-6568.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Highly hydrated **polyethylene oxide** (**PEO**) films represent one type of surface modification which may interfere with biofilm formation. **Protein** adsorption and saliva-mediated bacteial **adherence** were investigated in vitro on normal and **hydrophobized** glass **surfaces** and on glass **surfaces** with immobilized **PEO** films. More **protein** and bacteria bound to untreated compared to hydrophobized and **PEO**-treated glass. Pellicle and plaque formation was also studied in vivo on ceramic crown **surfaces** either untreated, **hydrophobized** or with immobilized **PEO** films. Pellicel and plaque formation was similar on the untreated ceramic and **PEO** surfaces. Less plaque seemed to collect on these surfaces compared to adjacent normal tooth surfaces. Almost no plaque accumulated on the **hydrophobic** crown **surface** and it was virtually devoid of stainable pellicle. Even after 7 days in the mouth without oral hygiene this **surface** was very **hydrophobic** and the disclosing solution could not spread.

L21 ANSWER 7 OF 7 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 91266027 EMBASE
DOCUMENT NUMBER: 1991266027
TITLE: Gastrointestinal lymphatic absorption of **peptides** and **proteins**.
AUTHOR: Rubas W.; Grass G.M.
CORPORATE SOURCE: Genentech, Inc., Pharmaceut. Res./Development, 460 Point San Bruno Boulevard,South San Francisco, CA 94080, United States
SOURCE: Advanced Drug Delivery Reviews, (1991) 7/1 (15-69). ISSN: 0169-409X CODEN: ADDREP
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 001 Anatomy, Anthropology, Embryology and Histology
002 Physiology
048 Gastroenterology
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
AB There is no doubt that intact **peptides** and **proteins** do cross the gastrointestinal wall into the lymphatics. Transfer from the lumen into the lymph system occurs in both lymphoid (PP) and non-lymphoid tissue (villous). Contribution by the paracellular pathway may be low. Transfer into lymph vessels via non-lymphoid tissue depends upon the **lipid** pathway, vehicle effects, sieving mechanisms of the blood vessels, and the application site. The best lymphatic access has been achieved from the proximal small intestine, while rectal application has also been

proven to be suitable. Utilizing formulations composed of a long chain and unsaturated **fatty acid** in combination with a surfactant favors transfer into lymph. The most promising results were achieved with combinations resembling chylomicrons, attempting to direct the compound into chylomicrons. For smaller substances such as **peptides**, the physicochemical characteristics are one of the key factors for lymphatic uptake. Substances which are highly lipophilic favor lymphatic passage. Assessment of solubility in peanut oil and/or in the viscous isotropic phase of the digested **lipids** is a useful tool to predict the lymph absorption potential. In order to utilize the sieving mechanism, conversion of a substance into a drug-polymer complex such as dextran or cyclodextran together with co-application of an absorption promoter (bifunctional system) has been shown to be feasible and suitable for lymphatic delivery. Endocytotic processes if present at all play a minor role in non-lymphoid tissue uptake. The most prominent uptake mechanism for particles and microspheres in lymphoid tissue is phagocytosis. The extent depends on surface property, the amount administered, and the suspension vehicle. **Hydrophobic surfaces** and aqueous suspending vehicles appear best. Transcytosis through PP, also called the M-**cell** route, seems to be most suited for highly potent compounds such as lymphokines and antigens (vaccines). The reasons are: (a) limited number of PP, thus, the overall surface area is relatively small, and therefore the total absorption potential is limited, and (b) PP tissue is rich in lymphocytes, thus, substances which interact with lymphocytes are best targeted to PP when using the oral route. Oral delivery to local lymph nodes by means of carrier systems (i.e. poly(lactide-co-glycolide) microspheres) via the M-**cell** route appears very promising. Migration, however, into and through the mesenteric lymph appears limited to microspheres less than 5 .mu.m in diameter. Though both **cell** types, M **cells** and enterocytes, share the same common glycoproteins and glycolipids a number of microorganisms are able to bind selectively to a receptor on the M-**cell** surface and thereby enter the host. Utilizing the microorganism's ligand could be beneficial for specific targeting to PP, bypassing lysosomal degradation in absorptive **cells**. Moreover, transport of a membrane-bound macromolecule by M **cells** is about 50 times more efficient than a soluble, non-**adherent** macromolecules.

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